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Record Export *Business* Swells Truck Production

Overseas sales of commercial vehicles during first half of year 60 per cent ahead of same period in 1926. Sounder retail credit policies prevailing

By Donald Blanchard
Editor, Commercial Car Journal and Operation & Maintenance

BECAUSE its fortunes are so closely linked to those of business in general, the truck industry enters the closing half of 1927 with considerable confidence that the remaining months of the year will yield a satisfactory volume of sales. Competent interpreters of economic trends expect business to continue at the relatively high levels maintained during the last six months and this favorable outlook provides a sound basis for optimism on the part of truck manufacturers and distributing organizations.

During the half year just ended, the truck industry placed a number of noteworthy achievements to its credit. Outstanding among these was a 60 per cent increase in export sales over the corresponding period in 1926, the six months' total of foreign sales this year being about 57,000 as compared with approximately 36,000 in the first half of last year.

In addition to pushing export sales to a new high level, the industry also established a new all-time record for total production during the first half of the year. Output for the six months ending June 30, 1927, amounted to in the neighborhood of 268,000, a gain of 4 per cent over the 1926 half-year total of 257,630.

If production of trucks continues at the pace set during the six months just ended, the year's output will total about 500,000 vehicles, a gain of about 9000 over last year's high record. This estimate of the year's production is based on the assumption that a normal seasonal distribution of output will obtain, which distribution puts 53.6 per cent of the year's production in the first six months.

From the standpoint of the domestic market, the most important development is the definite progress that has been made toward placing time sales on a sounder basis. The serious inroads made on the industry's profits by the losses sustained on sales to purchasers with insufficient credit, and in many cases with little or no sense of moral responsibility, brought matters to a head

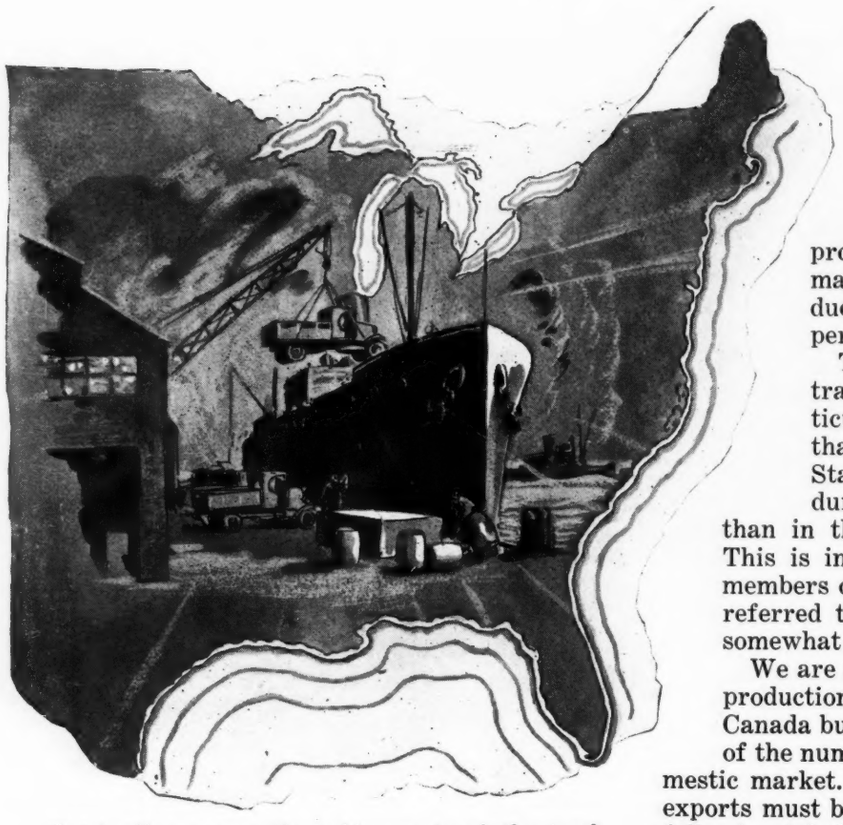
Truck Production—U. S. and Canada

	First Six Months 1926	1927
January	31,388	40,873
February	38,745	41,947
March	45,997	48,700
April	50,189	48,274
May	47,576	47,890
June	43,735	40,000*
Total	257,630	267,684

Net Production for Sale in U. S.

	First Six Months 1926	1927
January	22,549	29,529
February	28,791	27,998
March	35,938	37,520
April	38,579	32,690
May	37,709	33,663
June	36,222	27,300*
Total	199,788	188,700

* Estimated.



Outstanding among the achievements of the truck industry during the half-year just ended was a 60 per cent increase in export sales

late last year and the determination to reform this phase of the business was quite general. Since that time, considerable water has passed under the bridge and it is reassuring to note that real progress is being made in the direction of sounder credit policies.

Recently a nation-wide survey was made by the writer covering the time payment situation and other points having to do with truck merchandising. Reports were received from 170 truck dealers, distributors and factory branches. Analysis of the returns shows that 127, or about 75 per cent of the total, answered "Yes" to the question "Has there been any tendency to tighten up on time sales in your territory during the last year?"

This improvement in sales financing apparently is having the desired effect on trade profits as the survey mentioned above showed 79 dealers reporting that their net profits on first-half business in 1927 were larger than in the corresponding period of 1926. Of the remainder, 38 place their profits as equal to last year while 56 earned less. In other words, 69 per cent of those reporting have a net to show for the first six months of the year that is equal to or larger than last year's earnings in the same months. Undoubtedly sounder credits are responsible, at least in part, for this showing.

Unfortunately no really comprehensive figures are available showing profits earned by factories. This is due, of course, in part, to the fact that only a few of the exclusive truck makers publish income statements and also because a number of important makers also produce passenger cars and other items, making it impossible to segregate the results of truck manufacturing operations. In the long run, however, there is no doubt that the tendency to tighten up on sales financing will react favorably on profits, although temporarily the effect may be the opposite, largely due to reduced volume during the readjustment period.

The favorable showing made by the trade as indicated by the survey is particularly significant in view of the fact that retail sales of trucks in the United States probably were somewhat less during the first six months of this year than in the corresponding months of 1926. This is indicated by statistics, although the members of the trade reporting in the survey referred to previously showed average sales somewhat ahead of last year.

We are accustomed to talk in terms of total production figures for the United States and Canada but these do not give a correct picture of the number of vehicles produced for the domestic market. Both Canadian output and U. S. exports must be deducted, as has been done in the following tabulation:

	First Six Months 1926	1927
Total truck production	257,630	267,684*
Less Canadian production and U. S. exports	57,842	78,984*
Available for sale in the U. S.	199,788	188,700

*June estimated. Production means factory sales.

This shows an approximate decrease of 11,000 trucks, which is not large relatively, as it amounts in sales to about one-half truck per dealer. Probably it was to be expected in view of the tighter credit policies in vogue, as for the time being their effect is to curtail volume.

The fact that the net available for domestic sale is less than a year ago is due, of course, to the large increase in export business and emphasizes the importance of good foreign markets, not only because of the volume they produce but also for their stabilizing effect on production, helping to fill in as they do the valleys in domestic demand.

Reasonably complete figures covering actual retail sales compiled from registrations of new trucks are available only for the first four months of the year. These figures indicate that domestic sales this year are not quite up to last year's levels. Moreover the distribution of sales between the various makers has undergone considerable change in some cases, with a number of the moderate and smaller-size producers showing up especially well.

Despite the somewhat smaller number of vehicles sold domestically this year, it is possible that the actual dollar volume is on a par with last year. Available figures indicate that Ford sales are behind those of the industry as a whole and part of this loss has gone to other makers whose trucks

sell at higher prices. This change, of course, tends to maintain dollar volume in the face of smaller unit sales.

Although there are no official Ford production figures available, the indications are that his output for the first half is in the neighborhood of 25 per cent under last year. His production probably represents in the neighborhood of one-third of the industry's total this year as compared with over 40 per cent last year and considerably higher percentages in previous years.

Light Truck Increase Surprising

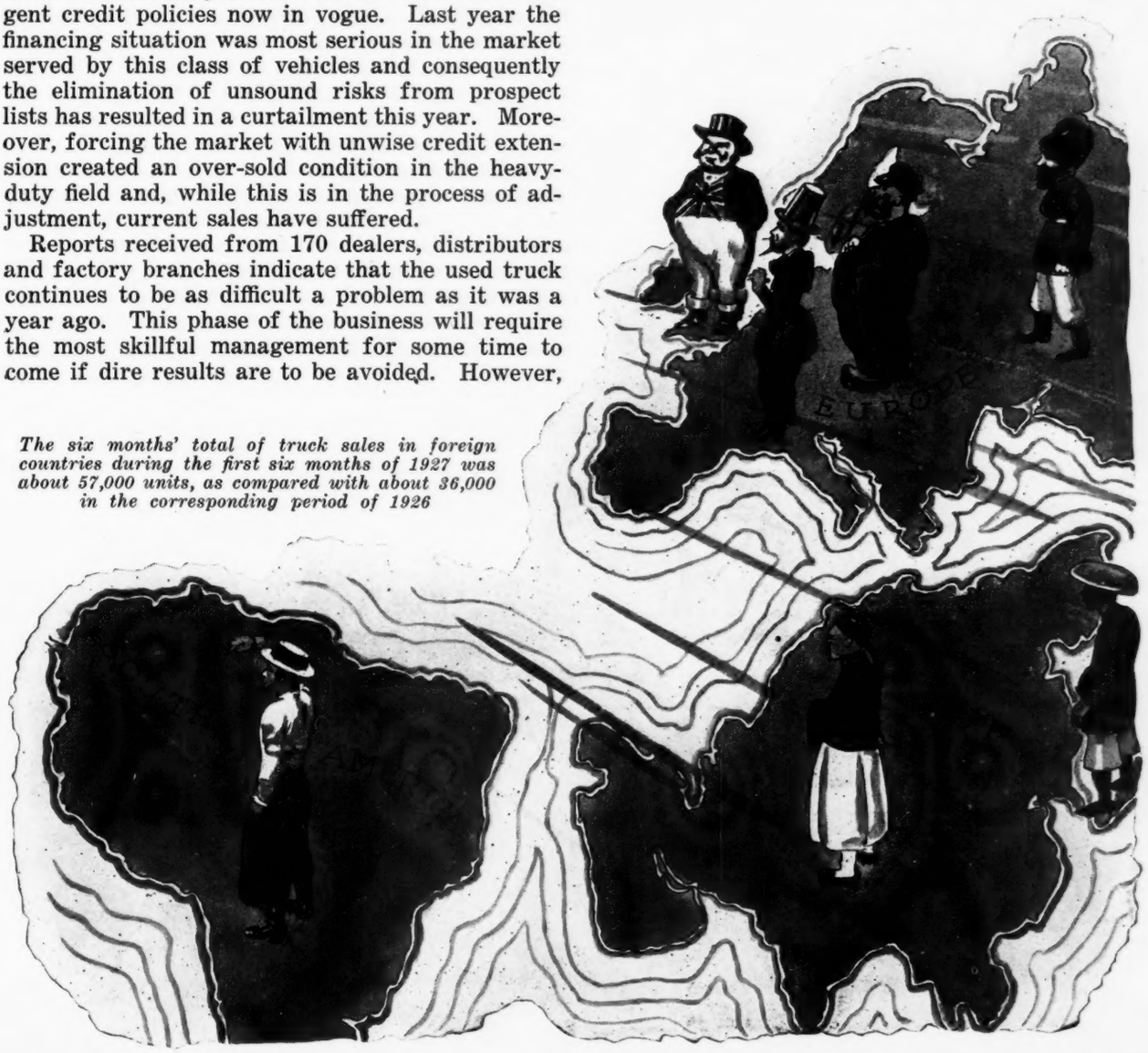
In view of the apparent Ford decrease, the lighter capacity trucks are showing a surprising increase over last year. With a single exception all capacity classifications of 2½ tons and under for the first five months of 1927 are considerably ahead of the corresponding months in 1926. On the other hand, trucks of 3 tons or more rating are behind last year's levels with one exception, and bus production also is off.

The decrease in the output of the heavier duty models undoubtedly is the result of the more stringent credit policies now in vogue. Last year the financing situation was most serious in the market served by this class of vehicles and consequently the elimination of unsound risks from prospect lists has resulted in a curtailment this year. Moreover, forcing the market with unwise credit extension created an over-sold condition in the heavy-duty field and, while this is in the process of adjustment, current sales have suffered.

Reports received from 170 dealers, distributors and factory branches indicate that the used truck continues to be as difficult a problem as it was a year ago. This phase of the business will require the most skillful management for some time to come if dire results are to be avoided. However, although the reports from the trade show that the situation is still unsatisfactory, their reports on earnings indicate that more progress is being made toward overcoming its more serious effects than in the past.

Time payment sales and used trucks continue to be the weak spots in the whole situation. There is a growing appreciation, however, that volume secured through taking chances on prospects of doubtful moral and financial responsibility is not worth while from any standpoint. Unwise financing of time selling helped to keep factories running but not at a satisfactory margin of profit. At the same time, such financing was placing trucks in the hands of irresponsible and incapable operators who cut rates and destroyed public confidence, thus making it difficult for responsible and capable operators to get by. Thus loose financing methods have reacted against the best interests of both the industry and its customers.

The industry is strengthening this weak spot in its merchandising armor and by so doing is placing motor transportation on a more secure foundation.



The six months' total of truck sales in foreign countries during the first six months of 1927 was about 57,000 units, as compared with about 36,000 in the corresponding period of 1926

Dodge Lowers Prices *as* New "*Four*" is Introduced

New cars fitted with same engine as used in previous line but wheelbase is shorter and weight is 300 lb. less. Bodies lower. Top speed 60 m.p.h.

By A. F. Denham

DODGE BROTHERS, INC., announced this week a new four-cylinder model. All cars in the line, including a standard sedan, a de luxe sedan, a coupe and a cabriolet roadster, carry equipment heretofore furnished only on Dodge de luxe models, and prices generally are $20 to $100 lower than previously.

At the present time only one body type, the four-door standard sedan, listing at $875, is in production and being shipped to dealers. The other models, as they make their appearance, will be priced as follows, according to an announcement by the company:

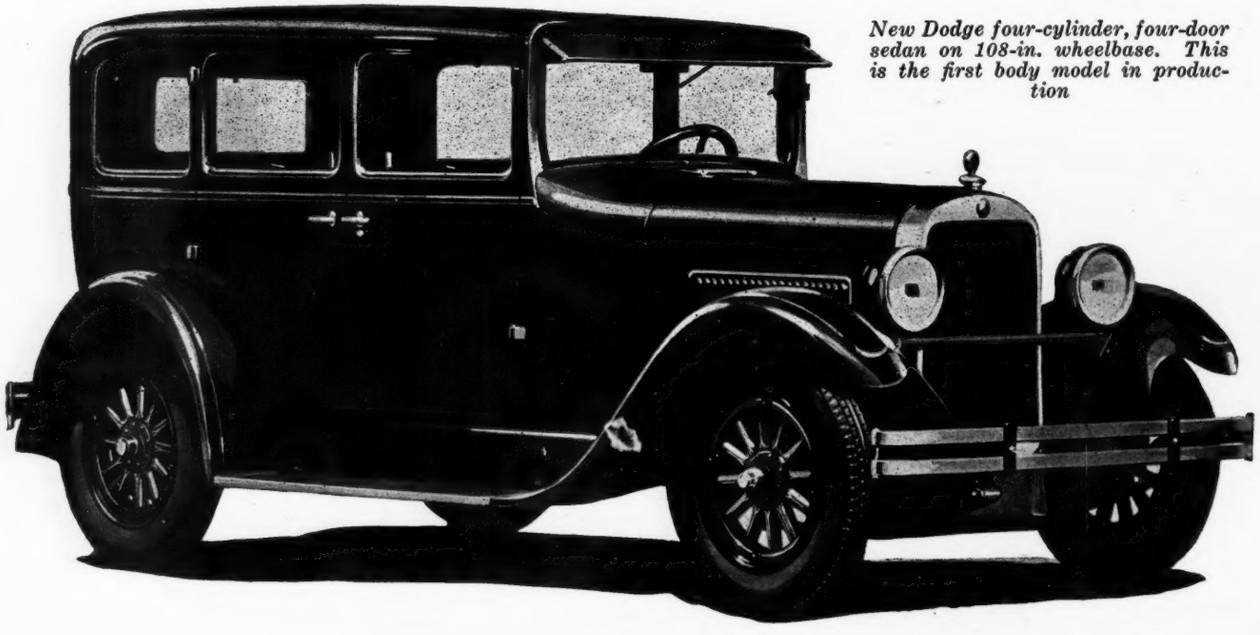
De luxe sedan, $975; coupe, $855, cabriolet roadster, $955.

Although the new car has a wheelbase of 108 in., which is 8 in. less than that of the previous model, the body designs employed give it an appearance of considerable length, and there is ample head and leg room in front and rear compartments. By reducing the weight of the car some 300 lb. and retaining the new four-cylinder engine (described in the April 30 issue of *Automotive Industries*), the power weight ratio has been materially increased, with the final result of remarkably improved performance as regards both acceleration and top speed. On the other hand, the reduction in weight has resulted in a reduction in power required at normal touring speeds, with a consequent gain in fuel economy.

The top speed of the car

Major Features of New Dodge Four

Wheelbase	108 in.
Bore and stroke	3⅞ by 4½ in.
Rated hp.	24.0 (N.A.C.C.)
Maximum power	40. hp.
Transmission	Three speed, standard shift
Clutch	10 in., single plate
Rear axle	Semi-floating, 376 to 1 reduction
Drive	Hotchkiss
Service brake	rear wheel, external
Emergency brake	Transmission
Wheels	19 in. wood (disk extra)
Tires	29 by 5.00 balloons
Turning circle diameter	38 ft.
Tread	Standard
Weight (4-door sedan)	2725 lb.



New Dodge four-cylinder, four-door sedan on 108-in. wheelbase. This is the first body model in production

is a good 60 m.p.h., while acceleration from 10 to 35 m.p.h. is accomplished in 13½ sec.

Bodies are considerably lower than formerly, the four-door sedan having an overall height of only 70⅜ in., as compared with 73¾ on the former four-cylinder sedan. This has been obtained mainly by the adoption of smaller, (19-in.) wheels, using 29 x 5.00 in. balloon tires. This in turn has enabled the use of a lower rear axle gear ratio, this now being 3.76 to 1, as against 4.16 to 1 formerly used.

As mentioned, the engine used in the previous four-cylinder car has been retained without change. Clutch and transmission are also identical with former units. Propeller shaft, front and rear axles and frame, however, are of entirely new design, as are the bodies. A departure from previous Dodge Brothers practice is found in the propeller shaft, which is of the tubular type but does not take the torque reaction and propulsion as formerly, the torque tube drive having been replaced with a Hotchkiss drive.

Mechanics Universal Joints

Two Mechanics Machine Co. metal universal joints are used, one at each end of the drive shaft. The transmission brake is 6¼ in. in diameter, and takes 2½ in. brake lining. A feature of this brake is the incorporation of a spring in the connecting link between the emergency brake lever and the bell crank on the brake, which insures more gradual application.

The new bevel gear rear axle is of the semi-floating type. The pinion shaft with its integral pinion is straddle-mounted, being supported in two opposed Timken roller bearings ahead of the pinion and a Hyatt roller bearing behind it, the former taking care of the end thrust. The rear axle housing is of the built-up type, with a gear carrier in front and a cover plate in the rear. Adjustment for the pinion is by means of a screw thread adjustment on the pinion shaft bearing housing locked by a clamp screw in the split axle front cover. End play for pinion shaft bearings is adjustable by means of two nuts and a serrated locking washer. Lateral adjustment of the ring gear is by the conventional method.

Axle shafts are supported on Timken roller bearings. Hub flanges which formerly were forgings, are of pressed steel, and 19-in. wood wheels are supplied.

Riveted to the rear wheel hub flanges are the cover plates for the external rear wheel brakes used for service braking. These have 14-in. drums and take 2¼-in. lining. Brake linkage is also different from that used on the former four-cylinder car, the equalizer mechanism being now mounted under the frame cross-member ahead of the axle.

Reverse Elliott ends have been adopted on the I-section front axle, which is unusually rigid. Both tie rod and drag links have ball and socket ends and ball bearing take the thrust in the steering knuckles. The ratio of the Gemmer worm and sector steering gear has been increased to 13 to 1 to make steering easier.

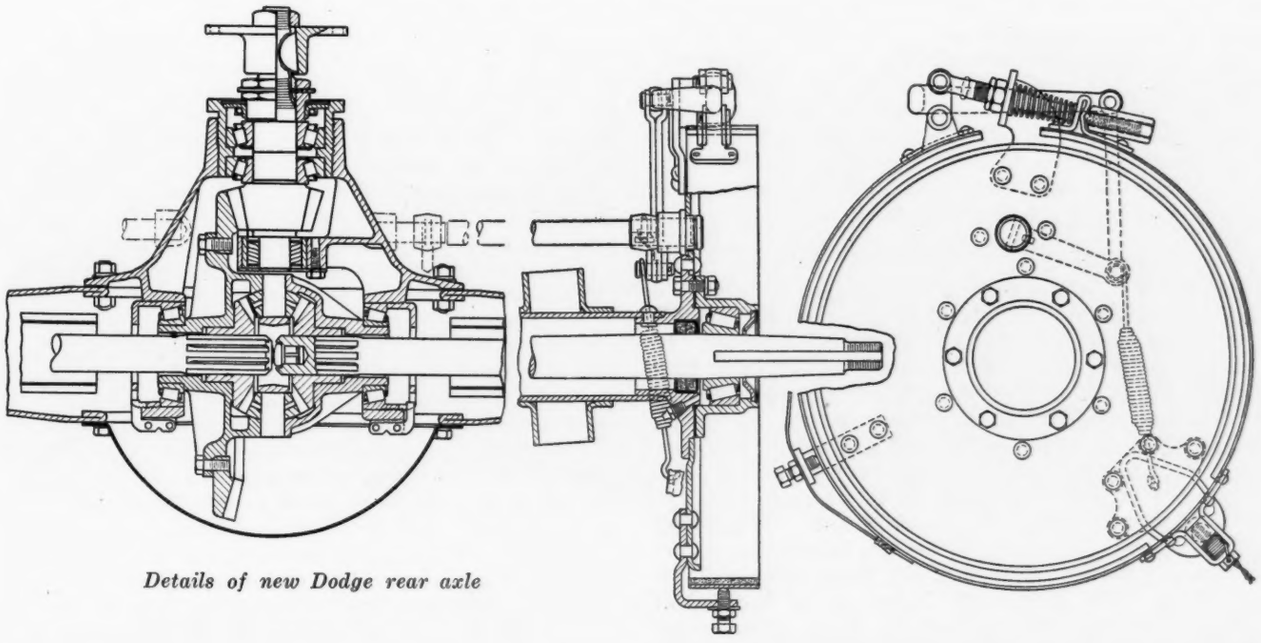
Springs are semi-elliptic as formerly, and of chrome-vanadium steel. Front springs are 37 in. long and 1¾ in. wide, while the underslung rear springs have a length of 54 in., and are 2 in. wide. A pressed steel spacing bracket is used below the rear axle, between it and the springs.

One-eighth-inch stock is used for the frame, which is tapered from end to end and has a kick-up over the rear axle. The side members have a maximum depth of 5 in. and flanges 1¾ in. wide. Three channel-type pressed steel cross-members are used. Of these, one forms the front engine support, the second is located directly ahead of the rear axle, and the third, a very wide one, is located over the 12-gal. gasoline tank at the rear. The rear engine supporting arms form an additional cross-member. Pressed steel brackets for the rear engine supports are riveted to the frame, and the bolts holding the engine to the frame pass through the bracket and the side member.

Radiator Narrower

Electrical units, carburetor and cooling system remain the same except that the radiator is somewhat narrower and higher than formerly, giving a more graceful appearance from the front. Zerk fittings for chassis lubrication are provided. The frame is drilled for either Watson or Gabriel snubbers.

Bodies for the new car are of steel throughout. By using a high belt molding and windows greater in length than height the low height of the car is emphasized and an appearance of greater length obtained.



Details of new Dodge rear axle

Finish of the standard sedan is in a deep blue with white striping on the belt molding, while the de luxe edition of this model is finished in two-tone gray-green, also with white striping, lacquer being used in each case. Window regulators in the doors are of the crank type, while the rear quarter windows are controlled by levers in the sills. Leather is used for upholstery in the standard sedan model, while the de luxe model has mohair upholstery.

Windshields are hinged at the top and are of the one-piece type. A cowl ventilator and cadet type sun visor are provided. Grouped on the instrument board are the usual speedometer, oil pressure gage and ammeter. There is a carburetor control button at the right and a locking ignition switch at the left of the panel. Spark and throttle controls are mounted on the walnut steering wheel.

Included in the equipment of all models are an automatic windshield wiper, a Moto Meter on the radiator, drum type headlamps, a rear view mirror, a rear traffic signal, front and rear bumpers, and in the closed models a dome light, robe rail, foot rest, roller curtains on rear quarter and rear windows, and smoking and vanity sets.

Closing the Gaps in the Highway System

APPROXIMATELY 26,000 miles is the estimate of the roads to be constructed this year under the supervision of the state highway departments," says Thomas H. MacDonald, chief of the U. S. Bureau of Public Roads, in *The Highway Magazine.*

"Probably more than 21,000 miles will be on the Federal-aid highway system," he continues, "and somewhat less than half of this improvement will be carried on with Federal aid. The year's addition to the Federal-aid system will bring the mileage of that system initially improved up to practically 150,000 miles, leaving only 35,000 miles of the roads thus far designated to be constructed in order to complete the initial improvement of the system.

"More rapidly than most of us realize the main highway system of the United States is being brought to a condition of continuous improvement. We are still a long way from the condition that will ultimately be required but we are moving toward it at a surprisingly rapid rate. Roads we are now improving with gravel and other low-type surfaces will eventually have to be further improved. Narrow present surfaces will need widening; bridges which suffice for the present will need replacement; grade crossings tolerated in the initial improvement must be later eliminated; and the whole system as originally constructed must be combed over to root out of it the danger places, the congestion breeders, and the failures of one sort or another inevitable in a construction work of such magnitude. These are refining processes and they will continue indefinitely; but the fact remains that we are now rapidly approaching the time when we shall have a continuous net-work of main state and interstate arteries improved throughout to some degree at least, and all of it under maintenance by the state highway departments.

Logs Show Present Condition

"Some idea of the present condition can be gained from the logs of the United States highway system now being compiled. Take route 40, for example, the mid-continent route which runs from Atlantic City to San Francisco. Westward from its eastern terminus this road passes through Wilmington, Baltimore, Wheeling, Columbus, Indianapolis, St. Louis, Kansas City, Topeka and Manhattan, Kansas, at which point it divides into 40 North and 40 South and takes the two courses to Limon, Colorado. From Atlantic City to St. Marys, Kansas, just beyond Manhattan or 40 North, a distance of 1302 miles, there is continuous pavement. The bells of St. Marys signal the end of the hard surface, but portend no great difficulty for the traveler. The pavement ends but the road beyond through Limon, Denver, Salt Lake City, Elko, Nev., and Auburn and Sacramento, Calif., to San Francisco, is mostly gravel surfaced and graded, with pavement again from Auburn to the terminus, and even the small mileage unimproved is for the most part under efficient blade grader maintenance. Cataloging the present condition of this road we find that 51 per cent of its 3220 miles is paved, 15 per cent is gravel surfaced and the remainder is graded and drained or unimproved.

"Route 30 from Atlantic City to Portland, Ore., is improved to a somewhat higher degree. It is approximately 88 per cent surfaced with gravel, bituminous macadam or the higher types of pavement.

Southern Cross-Country Route

"Down South the combination of Route 90 from Jacksonville to Van Horn, Tex., and Route 80 from Van Horn to Los Angeles takes one across the continent with a journey of 2640 miles. Much of this line in Florida is already paved, and the balance now surfaced with sand-clay is scheduled for immediate paving.

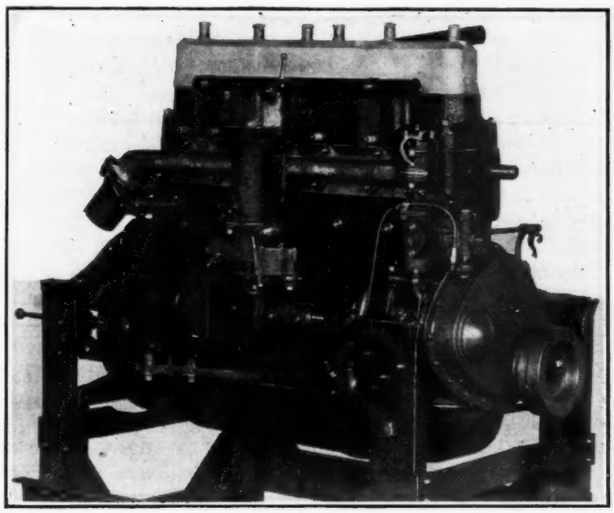
"The east coast route No. 1, from Fort Kent, Me., to Miami, is approximately 76 per cent improved with sand-clay, gravel, bituminous macadam or high-type pavements, and much of the unimproved earth road—all in the South—is included in the 1927 construction program.

"These are only a few of the main through routes which are already far advanced in improvement. As the improved sections of the through routes begin to draw together, the tendency rather strong in the early stage of improvement, to scatter construction, is supplanted by the desire to fill in the gaps of the main roads and thus complete the through connections. The designation of the Federal-aid and state systems and more recently the United States system has operated to center attention and effort on the improvement of the roads in each state which contribute most directly to a connected interstate system and serve the greatest numbers of people. The conception of a connected system is now firmly implanted in the minds of the highway authorities; and the influence of the Federal Government has recently been directed even more strongly toward such a concentration of effort. The next two or three years should see an intensive campaign to fill in the missing links, and we may confidently expect that by 1930 the totally unimproved sections of the principal through routes will be extremely rare if not absolutely non-existent.

"These interstate and state routes are the trunk lines which carry the flood of traffic that flows between our principal cities."

New Hudson *Cylinder Head* Design *Increases* Compression Ratio

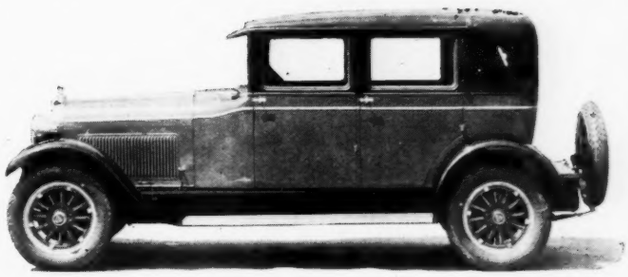
Arrangement claimed to make operation possible without the use of anti-knock gasoline.



Right side view of the redesigned Hudson engine, showing new type of manifold, torsion neutralizer at the front of the crankshaft and new spark plug location

A RADICAL departure in cylinder head design in the Hudson line has been announced by the Hudson Motor Car Co. The new head has one of the highest compression ratios of any car on the market at present, but is designed to operate without the use of anti-knock fuels.

While a number of external changes in the cars have been made, including the extending of belt moldings



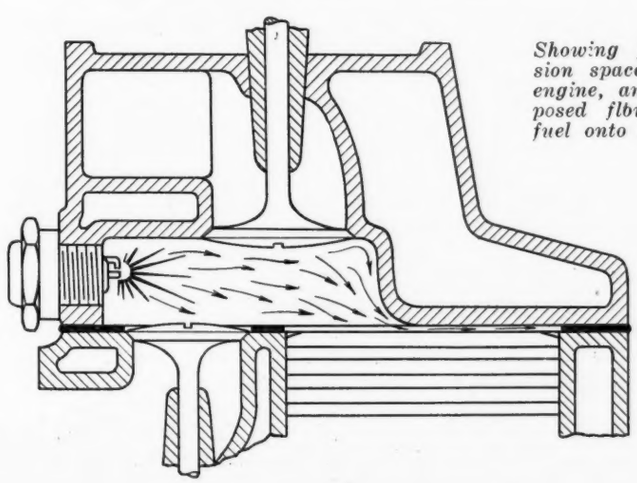
Belt moldings extended forward over the hood and a small metal side panel in the roof have been incorporated on Hudson Custom line cars

over the hood and cowl, new color schemes, and the incorporation of a metal side panel in the roof on the Custom line, mechanical changes in the engine feature the announcement.

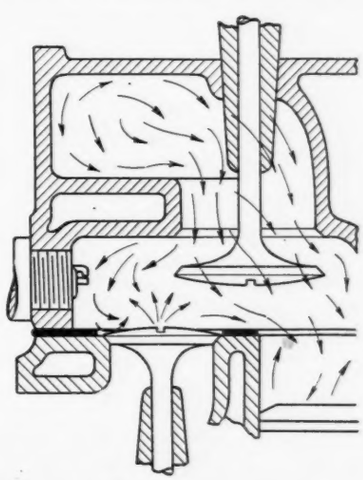
Valve Positions Changed

In the new head the relative positions of the exhaust and intake valves have been changed so that the intake valve, which is located in the head, slightly overlaps the exhaust valve in the block. Fuel entering the combustion chamber thus strikes the exhaust valve, which being the hottest portion in the head, acts as a hot spot to vaporize any fuel still in liquid form. The incoming fuel also acts as a cooling medium for the exhaust valve in this respect. Over about half the piston area there is no recess in the head, and the clearance of the piston under this portion is therefore equal to only the thickness of the gasket between head and block. It is this design which makes possible the small compression volume obtained with this F-head engine.

To prevent "knocking" in the engine, the spark plug has been moved to the far side of the combustion chamber, where it is located in the cylinder head side wall. With this arrangement the combustion space is concentrated over the exhaust valve, and the compactness



Showing form of compression space of new Hudson engine, and indicating supposed flbw of unvaporized fuel onto hot exhaust valve



of the compression chamber, together with the location of the spark plug in one side thereof, instead of in the head, are said to suppress detonation.

No changes have been found necessary in spark plug design in spite of the high compression ratio now used.

Further changes in the engine include the adoption of Invar strut three-ring pistons, and of a crankshaft torsion neutralizer at the front end of the shaft. The manifolding also has been redesigned. An inlet pipe now rises vertically from the carburetor, this portion being surrounded by an exhaust gas jacket, and makes a right-angled turn, connecting to the cylinder head at a single port. From this port the gas flows through interior cored passages to the various cylinders.

As might be expected, the engine changes and the new type of head have improved the performance. This is most noticeable in a quicker get-away and greater acceleration.

Incorporation of a small metal panel in the side of the roof on Hudson Custom line cars, has given these cars an "all-metal" appearance from the side. All models are continued at the same prices as formerly.

Changes Made *in* French Horsepower *Formula*

IN CONNECTION with the horsepower formula which has been used up to the present for taxation purposes in France there have been always two questionable factors—the constant, which was different for engines with different cylinder numbers, and the engine speed, which was supposed to be the maximum speed at which the engine turned over on the road. The formula was first promulgated in an instruction circular of December 15, 1912. The great majority of all engines at that time were gasoline engines operating on the four-stroke cycle, and for these the tax horsepower is determined by the equation

$$P = K\ n\ D^2\ L\ w,$$

where

P is the tax horsepower;

n, the number of cylinders;

D, the bore in centimeters;

L, the piston stroke in centimeters;

w, the maximum speed, in revolutions per second, obtained in operation on the road, and

K, a numerical coefficient varying with the number of cylinders and which is equal to 0.00015 for four-cylinder engines.

The results given by this equation conformed well with actual conditions at the time the formula was first promulgated, but changes made in engine design since then made it seem appropriate to issue new instructions, and these recently made their appearance, over the signature of Andre Tardieu.

In the past the Department of Mines, which has charge of automobile registration in France, accepted most four-stroke passenger car engines as having a maximum road speed of 1800 r.p.m. ($w = 30$), and this figure is to be used in the future as the statutory speed for touring car and light truck engines whenever there is no special reason for assigning some other speed. The statutory speed for the engines of heavy trucks, that is, those whose bare chassis with tires weigh in excess of 5500 lb., is to be 1200 r.p.m. The same constant K which heretofore has been used only for four-cylinder engines, will in future be used also for six and eight-cylinder engines. In the past a lower constant was used for the multiple-cylinder type of engine, but it is observed that these usually operate at even higher mean effective pressures than four-cylinder engines.

It is observed in the instructions that two-stroke automobile engines, such as are being built at the present time, do not give very different outputs from four-stroke cycle engines of the same piston displacement, and for that reason the same formula is to be applied to them.

Motorcycle engines are to be rated simply according to displacement, the ratings being 1, 2, 3, 4, or 5 hp. according to whether the displacement is less than or equal to 125 cu. cm. (7.64 cu. in.), over 125 and not over 175 cu. cm. (7.64-10.67 cu. in.), over 175 and not over 250 cu. cm. (10.67—15.28 cu. in.), over 250 and not over 350 cu. cm. (15.28—22.75 cu. in.), over 350 and not over 500 cu. cm. (22.75—30.6 cu. in.).

Above 500 cu. cm. displacement one horsepower is added for every additional 125 cu. cm. displacement, (7.64 cu. in.)

The preceding rules apply to engines designed to operate with atmospheric induction on gasoline, benzol or other liquid hydrocarbon fuels. For engines operating on producer gas, which, as a rule, have an output of from 20 to 30 per cent less than engines of the same size operating on liquid fuels, the tax horsepower is determined by first applying the formula given in the foregoing and then multiplying by 0.7. It is to the tax thus determined that the reduction for producer gas vehicles provided for by law is to be applied.

It is of course, obvious that the horsepower rules outlined above are not applicable to electric and steam vehicles, and even in connection with gasoline vehicles they lead, under certain conditions, to results which are inadmissible. Such, for instance, is the case of certain racing chassis. In the same way it would be impossible to accept sport vehicles with high speed supercharged engines at the statutory speed of 1800 r.p.m. In that case the Department of Mines will make a comparison of the power of which the engine is capable with that delivered by a conventional engine of the same cylinder dimensions and assign a suitable value to w. These, however, should always be very exceptional cases, and the general rule, which officials should not hesitate to apply even to high speed vehicles, should be the statutory speed.

The tax horsepowers of engines with less than four-cylinder and of other than motorcycle type will hereafter be determined on the same basis and without making use of the coefficients given in the instruction circular of December 15, 1912.

The above rules will be applied in the future in the case of acceptance of any new type of chassis, as well as to vehicles not belonging to a type which has been presented to and accepted by the Department of Mines. But the instructions are not retroactive, and types of car already accepted by the Department will continue to be dutiable for the number of horsepower at which they were accepted.

Just Among Ourselves

Aviators Engage in Epoch-Making as a Business

IF epochs be reckoned by what newspapers term epoch-making events, there have been a multitude of epochs produced by aviators in recent weeks. The transoceanic feats of the last few months, while they brought a real thrill to men in as well as outside of the automotive industry, were not in the nature of a surprise to the technicians who have been following the development of the engine and plane practice in recent years. But the enormous impression made by those feats on the public mind will mean much to future aviation progress in bringing about that public support and interest upon which the economic success of even the best technicians usually depends.

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Are There Too Many Conferences and Conventions?

AMERICAN business in general is admittedly over-conferenced and over-conventionized. The basic spirit of cooperation which underlies this tendency has been a strong influence for good without which the constructive, large-scale development of industry would have been impossible. But like other good things, its surface manifestations, can and have been carried to extremes. The automotive industry has been no exception to the general rule. The man-hours of time which have been wasted at meetings of various kinds undoubtedly runs high in most automotive organizations. Gradual recognition of this fact is resulting in a counter tendency among many busy executives causing them to say, in effect, "All these meetings and conventions are a waste of time. I can't be bothered with them." This latter tendency, it seems to us, is just as unfortunate and undesirable as the trend toward over-conventionizing.

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Meetings Necessary to Continued Progress

GATHERING of automotive men in various meetings and conventions for the exchange of ideas about various phases of their business is absolutely necessary if progress is to continue. Cooperative, mutually helpful activities are essential to the proper conduct of modern industry. Pooh-poohing all conventions and meetings is even worse than wasting a bit of time in attending them. The best working out of the situation lies probably along two lines; one in the hands of those organizing and running conventions, the other in the hands of those who might logically be expected to attend them.

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Conventions Need Not be in Joy-ride Class

EXECUTIVES, to reverse the order of consideration, probably would do well to sit down with a list of conventions before them, such a list, perhaps, as is in the Calendar of Coming Events on the last news page of each issue of this publication. Then they might profitably study that list in the light of the particular or general problems which they have been discussing in their own conferences. They might check off those meetings which seem to give promise of providing some information shedding light on those problems. They might then pick out the man or men in the organization best able to understand and gather such information, send them to the conventions as a company duty; emphasize the fact that convention attending is a business proposition. Make them feel that they are to attend in an active, not a passive, frame of mind. A lively, vigorous, inquiring man at a convention will get ten times the information ever accumulated by the man who simply goes to the meeting and sits there daring anybody to give him an idea. Inside and outside the regular sessions there is much to be learned and inspiration to be gathered. A report to the home office following the convention is a good way both to clarify the results of the meeting in the mind of the man who attended and to spread more definitely and helpfully to other members of the executive staff the results obtained. Whether a convention turns out to be a joy ride or a valuable business aid depends at least as much on the attitude of the convention attender as upon the man who builds the convention program.

* * *

Make Talks Interesting, Eliminate Excess Verbiage

WHEN the men who run conventions owe it to the individuals in the organizations which they serve to eliminate from the regular session as much unnecessary and time-consuming verbiage as possible. The time taken up in saying things which 99 per cent of the particular audience already knows might much better be taken in making the presentation more interesting and attractive through demonstrations, or something of that kind. Where such things aren't feasible, simple brevity and sticking to the point helps materially. The convention and general meeting are established and important parts of current automotive progress; it simply remains for us as an industry to work toward enabling those events to bring back to us a maximum of value.—N. G. S.

Federal Adds Three Six-Cylinder High Speed *Truck* Models

Interchangeability of four and six-cylinder engines features new jobs. One one-ton and two two-ton models included. One two-ton has worm drive, others have bevel.

By A. F. Denham

THREE new six-cylinder models, a one-ton bevel gear (F-6), a two-ton worm drive (T-6W) and two-ton bevel gear drive (T-6B), have been added to the line of the Federal Motor Truck Company. While prices have not been announced, officials of the Federal Company state that they will be the lowest priced six-cylinder models ever marketed by its organization.

Featuring the design of all three models is an interchangeability of engines, and either a Continental six-cylinder or Waukesha four-cylinder can be used. To this end, the Continental 30L, on the one-ton, and the 12C on the two-ton models have been redesigned, to make interchangeability complete. Three-point suspension is used instead of the usual four-point furnished with these engines, while other changes include the adoption of a Swan type manifold.

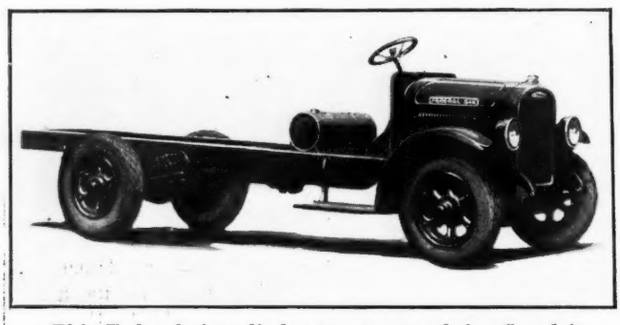
Wheelbase of the Scout six, one ton, is 124 in., including a loading space of 91 in., back of the seat. A 136 in. wheelbase chassis is also furnished on this model at additional cost. The chassis itself follows closely on the design of the Federal 4-cyl. model of the same capacity, and includes Borg & Beck single plate dry clutch; three-speed unit transmission, built by Federal; Cleveland universal joints; Timken bevel drive rear axle; internal side by side service and emergency brakes on the rear wheels with 16 in. drums and 2¼ in. wide lining; 30 by 5 in. pneumatic tires; Gemmer steering gear; Zerk chassis lubrication; Delco-Remy electrical units and Zenith double venturi carburetor. Front axle is of I-beam type built by Federal; wheels are 20 in. in diameter and metal spoked, and the semi-elliptic springs are 39 by 2¼ front, and 50 by 2½ rear, with Hotchkiss drive.

Four main bearings support the 2⅛ in. crankshaft of the one-ton model engine, which has a bore and stroke of 2⅞ by 4¾, giving it a piston displacement of 185 cu. in. and rated horsepower of 19.85. Dynamometer tests show this engine capable of developing 44.5 hp. at 2800 r.p.m., its rated speed, with a dry weight of 478 lb. Valve arrangement is of the L-head type; crankcase and cylinder block form an integral casting, and lubrication is by pressure feed to main and connecting rod bearings, camshaft bearings and timing gears. Crankcase oil capacity is five quarts. Cooling is by means of a centrifugal pump. As mentioned, three point engine support is used, the engine being cushioned in rubber. Additional features of standard equipment are oil strainer, gasoline filter, and air cleaner. Maximum speed of this model is said to be in the neighborhood of fifty miles per hour. Body allowance is 750 lb.

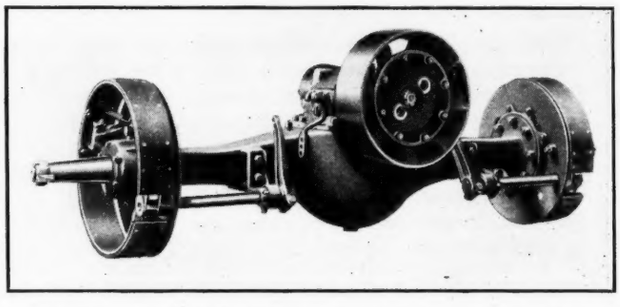
Standard wheelbase of the two-ton models, which differ mainly in the type of rear axle drive used, is 143 in., which gives a loading space of 119 in. back of the cab. Special wheelbases of 155, 168 and 180 in. are also available at extra cost while a tractor edition with a 132 in. wheelbase is also offered.

The six-cylinder engine on the two-ton models is also of the L-head type. It has a bore and stroke of 3¼ by 4⅝ in., giving it a piston displacement of 230.2 cu. in., NACC rating of 25.35 hp., and 62 actual horsepower at 2700 r.p.m. Weight of the engine is 587 lb. A seven-bearing, 2⅜ in. crankshaft is a feature of this engine. Pressure oil feed to main, connecting rod, camshaft and timing gears is employed with a crankcase oil capacity of 6 quarts.

Differing from the one-ton model, the transmission



This Federal six-cylinder two-ton truck is offered in either worm gear or spiral bevel drive. Solid tires are used on the worm drive edition



A propeller shaft brake is used on this worm-drive 2-ton model while the bevel gear edition has two side-by-side brakes on rear wheels.

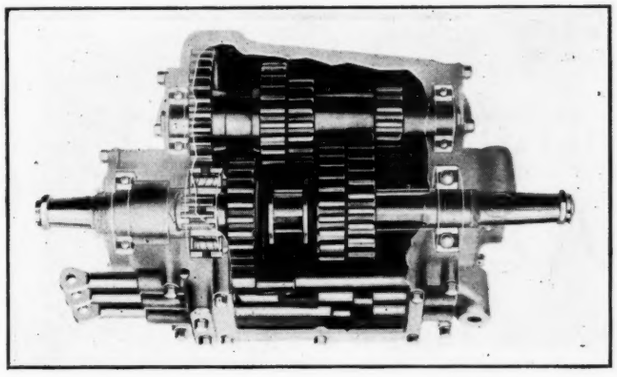
is mounted amidships. It is of the four-speed type, and built by Federal, with annular ball bearings and three-point support. The front propeller shaft is fitted with a Snead fabric universal joint, while the rear driveshaft has Cleveland universals of the metal type.

A Borg & Beck 12 in. single plate clutch is used on both two-ton models. Both types of rear axles are of Timken manufacture. The worm drive axle has a tread of 60 in., and road clearance of 10½ in., while the spiral bevel gear model has a tread of 57 in. and a road clearance of 9½ in. Tapered roller bearings are used in both axles, which have a pressed steel one-piece housing.

Front axles of both models are I-beam in cross-section, manufactured by Federal, and have a tread of 60 in. With the worm drive axle an emergency brake is mounted on the worm housing. Drum diameter of this brake is 13 in., with a width of 3½ in. Service brakes with this type axle are 3½ in. wide and 17¼ in. in diameter, mounted on the rear wheels, and are of the internal type.

With the bevel gear axle both sets of brakes are mounted side by side on the rear wheels. These are of the internal type, and have a drum diameter of 17¼ in., the service brake having a width of 2½ in. while the emergency has a two-inch wide face.

As on the one-ton model, a Gemmer worm and sector steering gear is used; chassis lubrication is by Zerk pressure gun system; Delco-Remy electrical units are supplied and a 15 gal. gasoline tank is mounted on the



Sectional view of the four speed transmission used on new Federal six-cylinder trucks

chassis under the seat with vacuum feed to engine. The frame of the two-ton model is 6 in. deep as against 5 in. for the one-ton job. Frame stock of 3/16 and ¼ in. respectively is used for the one and two-ton models, and have a loaded height from the ground of approximately 26 and 29 in. respectively at the rear of the chassis.

In addition to the usual equipment, oil filter, gas strainer, and air cleaner are furnished on the two-ton models also. Solid tires are furnished with the worm drive axle model. These are 34 by 4 in. at the front, and 34 by 7 in. at the rear. Optional oversize solids, as well as pneumatics are furnished on this model at extra cost. Pneumatic tires are standard equipment on the bevel two-ton model. These are 32 by 6 front, and 34 by 7 rear, with oversize pneumatics at extra cost, the latter being supplied with dual rear disk wheels. Cast steel spoke wheels front and rear form the standard equipment. Springs on the two-ton models are of the semi-elliptic type, 40 x 2 in. front, and 52 by 3 in. rear. Radius rods are used on both two-ton models, these being fitted with ball and socket joints both front and rear.

An interesting feature of these new trucks is that no governor is furnished. The elimination of this item has been brought about by higher road-speeds necessary on trucks in order to enable them to keep up with passenger car traffic. It may be noted, from this angle, that rated engine speeds of the new Federal trucks are considerably higher than formerly.

Body allowance on the two-ton models is 900 lb. Chassis weights of the various models are as follows:

One ton	2500 lb.
Two ton, worm drive	4200 lb.
Two ton, bevel drive	4000 lb.

Standard gear ratios are 4 5/9 to one on the one-ton and 6.0 to one on both two-ton axles.

High-Speed Oil Engines

CONSIDERABLE new experimental data on high-speed heavy oil engines are contained in Raschlaufende Olmaschinen-Untersuchungen an Gluhkopf-, Diesel und Vergasermaschinen (High-Speed Oil Engines—Investigations on Hot Bulb, Diesel and Carburetor Engines), by Dr. Ing. Otto Kehrer, which has been published by R. Oldenbourg of Bunich and Berlin. Dr. Kehrer is laboratory assistant for heat engines at the Munich Technical College, and the experimental investigations covered in the book were made in the heat engines laboratory of that college. They were made on a Lanz Bulldog tractor engine of the hot bulb type, and the results obtained are compared in the book with similar published data relating to other hot bulb, and to high-speed Diesel and carburetor engines.

According to Dr. Kehrer, the hot bulb engine, which was invented in England in 1890 was for a long time neglected in Germany, because interest in that country was shortly thereafter focused on the Diesel engine, the development of which began in 1892. The former type of engine was developed chiefly in the Scandianvian countries, to meet the demands of the fishing and coastal shipping industries of those countries. In its earlier forms the hot bulb engine was not very satisfactory, except as a constant speed engine, but its faults have been largely overcome since. The Lanz engine is a single cylinder design of 7.5 in. bore and 8⅝ in. stroke. It was tested at various speeds ranging between 250 and 600 r.p.m., and developed a maximum power of 18.3 h. p. at 600 r.p.m., corresponding to a m.e.p. of 39 lb. p. sq. in., with a specific fuel (gas oil) consumption of 0.73 lb. p. h. p. hr.

Several new methods of presenting engine test data are made use of in the book. For carburetor type engines, for instance, a coordinate diagram is used in which brake horse powers are plotted on the horizontal and specific fuel consumption on the vertical scale, and curves are drawn in corresponding to different speeds of operation. Another set of curves, more or less perpendicular to the former, represent the position of the throttle. Thus the diagram shows the interrelations of all of the variables in engine operation—speed, horse power, throttle position and fuel consumption.

In addition to power and consumption measurements, indicator tests and exhaust analysis were made and are covered in the book. There are also appended Stodola entropy charts for a number of different engines, corresponding to both full load and part load.

Cars and Trucks in United States—July 1, 1927

New York	1,734,600	Maryland	245,070
California	1,585,568	Colorado	234,794
Ohio	1,436,939	Alabama	224,843
Illinois	1,303,326	Louisiana	210,000
Pennsylvania	1,264,366	Oregon	208,478
Michigan	1,040,680	West Virginia	199,459
Texas	985,406	Mississippi	198,500
Indiana	744,871	Arkansas	175,709
Iowa	656,903	South Carolina	174,523
Massachusetts	634,661	South Dakota	165,000
Wisconsin	629,582	North Dakota	145,383
New Jersey	629,339	Dist. of Col.	129,991
Missouri	620,000	Maine	129,046
Minnesota	605,525	Rhode Island	104,126
Kansas	454,685	Montana	99,460
North Carolina	441,650	New Hampshire	86,618
Oklahoma	423,775	Idaho	86,100
Florida	374,757	Utah	84,450
Washington	348,628	Vermont	70,172
Virginia	299,924	Arizona	70,000
Nebraska	286,850	New Mexico	51,044
Tennessee	269,948	Wyoming	46,198
Connecticut	260,100	Delaware	42,505
Georgia	257,760	Nevada	21,896
Kentucky	250,989		
		United States	20,744,197

Persons per Motor Vehicle—July 1, 1927

California	2.8	New Jersey	6.0
Kansas	2.9	Idaho	6.1
Nevada	3.5	Utah	6.2
Florida	3.6	Maine	6.2
Iowa	3.7	Connecticut	6.3
Dist. of Col.	4.2	Maryland	6.5
Indiana	4.2	New York	6.6
South Dakota	4.2	Arizona	6.6
Oregon	4.3	North Carolina	6.6
Michigan	4.3	Massachusetts	6.7
Minnesota	4.4	Rhode Island	6.8
North Dakota	4.4	Montana	7.2
Washington	4.5	New Mexico	7.7
Wisconsin	4.6	Pennsylvania	7.7
Colorado	4.6	Virginia	8.5
Ohio	4.7	West Virginia	8.5
Nebraska	4.9	Mississippi	9.0
Vermont	5.0	Tennessee	9.2
New Hampshire	5.2	Louisiana	9.2
Wyoming	5.2	Kentucky	10.1
Texas	5.5	South Carolina	10.6
Oklahoma	5.6	Arkansas	11.0
Illinois	5.6	Alabama	11.3
Missouri	5.7	Georgia	12.3
Delaware	5.7		
		Total, U. S.	5.7

Mid-Year Registrations Gain 1,164,000 Over 1926

Number of motor vehicles in service on July 1 is 6 per cent greater than at the same time in 1926. A few states indicate statistical losses over last year.

By K. W. Stillman

TOTAL vehicles registered in the United States during the first six months of 1927 amounted to 20,744,197 cars, trucks and buses and 97,539 motorcycles.

Passenger car registrations were 18,133,440, truck and bus registrations combined totaled 2,610,757, while in the relatively few states in which bus registrations are kept separate from other types of vehicles there were 13,006 registered.

Registrations of cars, trucks and buses so far this year were 1,164,329 greater than for the similar period of 1926, which represents a gain of 6.0 per cent. According to these figures and census estimates for July 1, 1927, there are 5.7 persons per motor vehicle in the country at this time.

As has been the case in the past few years, July 1 registrations are less than those for the preceding end-of-the-year period. As has been explained before, this, undoubtedly, is caused by two factors. The first and more important one is that, with the increasing number of cars being eliminated from service each year, it takes a longer time for new car sales during the following year to replace them in registrations.

During 1926, according to estimates made in the last Statistical Issue of *Automotive Industries*, there were approximately 2,143,000 motor vehicles removed from service. All of these vehicles appeared in the end of the year registration data for 1926 but none of them were registered during this year. Thus it is evident that at least this many new vehicles must have been sold and registered during the first six months of 1927 if the mid-year registrations were to equal or exceed those of the preceding end-of-the-year.

A few years ago it was possible to do this so that each registration tabulation, whether taken in the middle or at the end of the year, showed substantial increases

over the preceeding one. Within the last year or two, however, the condition has changed and it now takes considerably more than six months' sales of new cars to overcome the effects of the very considerable amount of elimination which have taken place during the previous year.

The second factor is one which has always operated to influence mid-year registration data and is no more effective now than in past years. This is the very great amount of estimations which must be done in tabulating mid-year registrations. This period is in the midst of new car registrations activities and complete and accurate returns are available at this time from only relatively few states.

This second factor makes it unwise to depend too much upon mid-year registration data. Many states are unable to supply accurate information at this time for more than the first four months of the year, but estimate the rest, and in nearly every case the books have not been closed and completely audited as early as the information is required for this presentation.

In general, however, the figures presented here may be considered fairly reliable as expressing the general trends of the industry.

This year, for the first time, a number of states show fewer motor vehicles registered than one year ago. At first glance this appears rather improbable but it is doubtlessly due to the same causes as were mentioned before. The number of vehicles being scrapped each year is constantly increasing and the amount of new

Motor Vehicle Registration Statistics, July 1, 1927

	Total Cars, Trucks and Buses	Passenger Cars	Trucks and Buses	Buses (Where Segregated)	Motor-cycles	Registration Fees	Gasoline Taxes
Alabama	224,843	195,805	29,038	194	300	$2,364,026	$3,059,929
Arizona	70,000	60,000	10,000	...	250	408,000	515,000
Arkansas	175,709	149,387	26,322	...	175	3,200,000	4,500,000
California ...	1,585,568	1,386,761	198,807	...	8,162	7,853,944	8,600,000
Colorado	234,794	216,031	18,763	...	922	1,436,773	1,114,615
Connecticut ..	260,100	219,083	41,017	599	3,076	6,174,232	741,786
Delaware	42,505	34,705	7,800	200	261	775,699	217,405
Dist. of Col...	129,991	114,671	15,320	300	1,149	142,685	1,057,850
Florida	374,757	316,284	58,473	...	1,050	5,400,000	3,020,000
Georgia	257,760	223,741	34,019	86	730	3,476,424	2,966,714
Idaho	86,100	78,000	8,100	...	382	1,287,000	540,214
Illinois	1,303,326	1,136,208	167,118	...	4,607	13,916,764	None
Indiana	744,871	641,079	103,792	802	2,689	5,027,537	4,386,663
Iowa	656,903	606,638	50,265	...	1,507	9,801,040	2,189,493
Kansas	454,685	406,605	48,080	...	847	4,617,560	2,071,204
Kentucky	250,989	224,361	26,628	...	542	3,998,362	3,800,000
Louisiana	210,000	175,000	35,000	...	450	3,953,000	840,000
Maine	129,046	109,171	19,875	...	950	2,000,000	825,000
Maryland	245,070	234,835	10,235	400	1,981	2,548,542	2,153,199
Mass.	634,661	555,183	79,478	1,271	5,362	10,871,454	None
Michigan	1,040,680	900,536	140,144	...	2,806	15,379,653	5,024,303
Minnesota ..	605,525	530,888	74,637	339	2,118	9,684,992	2,600,000
Mississippi ..	198,500	179,000	19,500	...	50	1,610,000	1,685,000
Missouri	620,000	545,000	75,000	...	1,450	7,300,000	3,000,000
Montana	99,460	85,087	14,373	...	118	1,020,380	427,000
Nebraska	286,850	263,953	22,897	112	523	2,924,006	1,259,000
Nevada	21,896	17,337	4,559	...	71	214,000	187,000
N. Hampshire	86,618	76,200	10,418	...	1,035	1,652,000	286,000
New Jersey ..	629,339	520,499	108,840	4,051	5,504	11,582,557	None
New Mexico .	51,044	49,483	1,561	...	172	486,053	529,636
New York ..	1,734,600	1,406,245	328,355	...	14,290	29,000,000	None
N. Carolina..	441,650	399,000	42,650	650	1,100	6,054,820	8,120,604
N. Dakota ...	145,383	133,973	11,410	...	228	1,413,894	305,000
Ohio	1,436,939	1,276,939	160,000	...	7,000	9,303,500	7,842,540
Oklahoma ...	423,775	384,500	39,275	...	900	5,600,000	2,580,000
Oregon	208,478	192,302	16,176	...	1,603	5,927,727	1,621,975
Penna.	1,264,366	1,094,653	169,713	...	11,210	22,925,010	6,000,000
Rhode Island.	104,126	86,228	17,898	300	1,082	1,804,790	253,000
S. Carolina ..	174,523	157,087	17,436	145	297	1,970,986	1,825,561
S. Dakota ...	165,000	152,000	13,000	...	300	2,600,000	1,000,000
Tennessee ...	269,948	245,401	24,547	...	685	3,300,000	1,740,000
Texas	985,406	885,110	100,296	2,067	2,398	14,650,000	4,920,695
Utah	84,450	72,927	11,523	...	432	603,771	625,000
Vermont	70,172	64,876	5,276	87	450	1,884,280	200,000
Virginia	299,924	264,052	35,872	502	847	4,692,959	3,004,159
Washington ..	348,628	298,639	49,989	...	2,005	5,684,037	1,631,226
W. Virginia .	199,459	176,797	22,662	481	1,043	3,570,937	1,157,000
Wisconsin ...	629,582	550,358	79,224	420	2,324	8,600,000	2,350,000
Wyoming ...	46,198	40,822	5,376	...	106	478,330	257,211
Total	20,744,197	18,133,440	2,610,757	13,006	97,537	$271,171,724	$103,030,982

Numerical Gains and Losses in Car and Truck Registrations

July 1, 1926, to July 1, 1927

GAINS

New York	229,003	West Virginia	15,792
California	125,998	Mississippi	13,500
Ohio	121,939	Dist. of Col.	13,452
Illinois	85,290	Oregon	12,837
Texas	81,673	Iowa	11,997
New Jersey	54,311	Alabama	11,658
Indiana	54,263	Rhode Island	10,653
North Carolina	49,977	Montana	7,300
Michigan	48,502	New Hampshire	7,218
Tennessee	46,151	Vermont	6,305
Wisconsin	38,785	Utah	6,259
Missouri	36,550	South Dakota	5,000
Minnesota	33,376	New Mexico	4,473
Virginia	24,824	Delaware	2,480
Washington	23,968	Wyoming	1,952
Connecticut	22,460	Nevada	1,369
South Carolina	22,173	North Dakota	1,059
Kansas	20,999	Idaho	463
Maryland	20,989		
Georgia	29,452	Total Gains:	
Massachusetts	19,454	U. S.	1,314,904

LOSSES

Colorado	206	Louisiana	6,000
Kentucky	1,011	Oklahoma	6,225
Arkansas	1,526	Nebraska	31,922
Maine	3,979	Florida	34,210
Arizona	5,000	Pennsylvania	60,396

Total Losses: U. S. 150,575

Net Gain: U. S. 1,164,329

Percentage Gains and Losses in Car and Truck Registrations

July 1, 1926, to July 1, 1927

GAINS

Tennessee	20.7	Indiana	7.9
New York	15.2	Washington	7.4
South Carolina	14.5	Mississippi	7.3
North Carolina	12.8	Illinois	7.0
Dist. of Col.	11.5	Nevada	6.7
Rhode Island	11.4	Oregon	6.6
Vermont	9.9	Wisconsin	6.6
New Mexico	9.6	Missouri	6.3
Connecticut	9.5	Delaware	6.2
Maryland	9.4	Minnesota	5.8
New Jersey	9.4	Alabama	5.5
Ohio	9.3	Michigan	4.9
New Hampshire	9.1	Kansas	4.9
Virginia	9.0	Wyoming	4.4
Texas	9.0	Massachusetts	3.2
Georgia	8.6	South Dakota	3.1
West Virginia	8.6	Iowa	1.9
California	8.6	North Dakota	0.7
Utah	8.0	Idaho	0.5
Montana	7.9		

LOSSES

Colorado	0.1	Maine	3.0
Kentucky	0.4	Pennsylvania	4.6
Arkansas	0.9	Arizona	6.7
Oklahoma	1.4	Florida	8.4
Louisiana	2.8	Nebraska	10.0

Total—Percentage Gain—U. S. ... 6.0

sales required to compensate for this loss in vehicles in operation is constantly growing greater. This fact, coupled with the incompleteness of information which may be of greater influence in particular states this year than it was last year, seems to be the explanation of the unique trend expressed for the first time in this tabulation. There is little doubt that all of these states showing a loss over last July will register substantial increases next December over the 1926 total figures.

There have been few important changes in the relative position of the various states. Because Pennsylvania showed a slight loss in registrations over those of a year ago, it has been reduced one place in the order of rank, exchanging third place with Ohio. This year Michigan has registered over one million cars and trucks, thus making six states in this group, one more than a year ago. Rhode Island has advanced to the 100,000 class, leaving but 10 states in which fewer than this number of vehicles are registered.

Total gains were considerably less than those of a year ago, which might have been expected in consideration of the great increase of eliminations and the relatively stationary production and sales figures for the past two years.

In 10 states a loss of registrations is indicated but the total loss is only 150,000 and no small part of that is probably due to incomplete data. Total gains for the year were about 1,315,000 as compared with 1,991,000 for 1926. Percentage gains this year were 6.0 per cent while in 1926 they were 11.3.

Unless our production and domestic sales activities should increase in future years at a much more rapid rate than they have in the past two or three years, this trend of decreasing registration gains is likely to continue and it may not be so very long before nearly all the domestic sales will be required for replacement purposes, except for that portion sold to an increasing population increment.

AN ambitious road-building program has been laid down by the Japanese Government. A sum of $80,000,000 is to be spent on roads over a period of 10 years. At the end of that period the country will have 53,000 miles of roads, of which 14,500 miles will be suitable for automobile traffic. Motor bus transportation is rapidly increasing in the country.

THE Finnish government plans to expend approximately 60,000,000 marks or about $1,500,000, for improvement and maintenance of Finland's roads during 1927. If finally approved by the parliament, it will be the largest sum ever expended in Finland for road work in one year.

Synchronized Positive Clutch Transmission Aims to Make Gear *Shifting* Noiseless

Double clutching is not necessary when shifting to a lower gear. Improved car acceleration is claimed.

A THREE-SPEED and reverse synchronized positive clutch type of transmission has been invented by H. B. Ross, M. E., of Denver, Col. The particular object of the inventor has been to make gear shifting positive and noiseless at all engine speeds.

The principle involved in the mechanism is illustrated in Fig. 1, which shows a section of the secondary shaft and gears mounted thereon. Gear *A* is an integral part of the hollow secondary shaft *B*, mounted on the stationary shaft *C*. Gear *D* is free upon the secondary shaft and in order to transmit the drive it must be clutched thereto. In order that this clutching may be effected positively and noiselessly, it is necessary that the two members of the clutch be first synchronized, that is, caused to rotate at equal speeds.

It will be noticed that the gear *D* is mounted on a bushing *E* which has one cylindrical and one conical portion on its outer surface. Gear *D* and the clutch member formed integral therewith are bored out to conform to the outer surface of the bushing *E*. The bushing, which is made in the form of a die-casting, is provided with the helical splines on the inside, which engage with corresponding splines formed on the outside of the hollow shaft. As gear *D* is shifted in the direction of gear *A* to bring the two clutch members into engagement, the friction at the conical contact surface between gear and bushing tends to synchronize the two members. As the two clutch members are connected with the gear *D* and the bushing respectively, synchronization of gear and bushing involves also synchronization of the clutch members, and, consequently easy and positive shift.

The way this clutching mechanism is built into the complete transmission is illustrated in Fig. 2. It is used only for the forward drives, the engagement of the reverse being effected in the conventional way. The inventor argues that the reverse should be engaged only while the car is at a standstill, so that no synchronizing device is required for it.

Mr. Ross has fitted this transmission to a 1925 Studebaker Big Six and states that the results of tests made with it were highly gratifying. The friction clutch used with this transmission is of the single plate type. It is claimed that by the use of this transmission the acceleration of the car is improved, and it is possible to start in low gear, shift and drive in second gear, and shift again to high gear, all in 25 ft. of travel. Double clutching is not necessary in shifting to a lower gear. The shift is exactly as with stock cars having the standard shift and the operator therefore does not have to learn gear shifting anew.

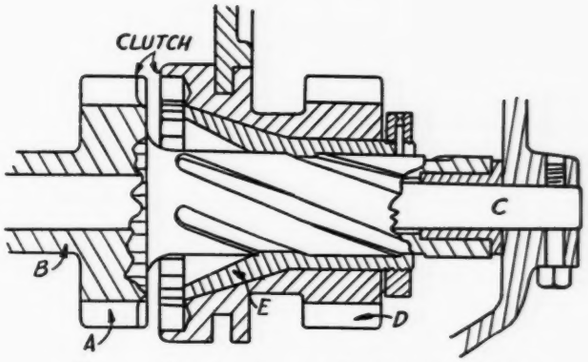


Fig. 1. Synchronizer of Ross transmission

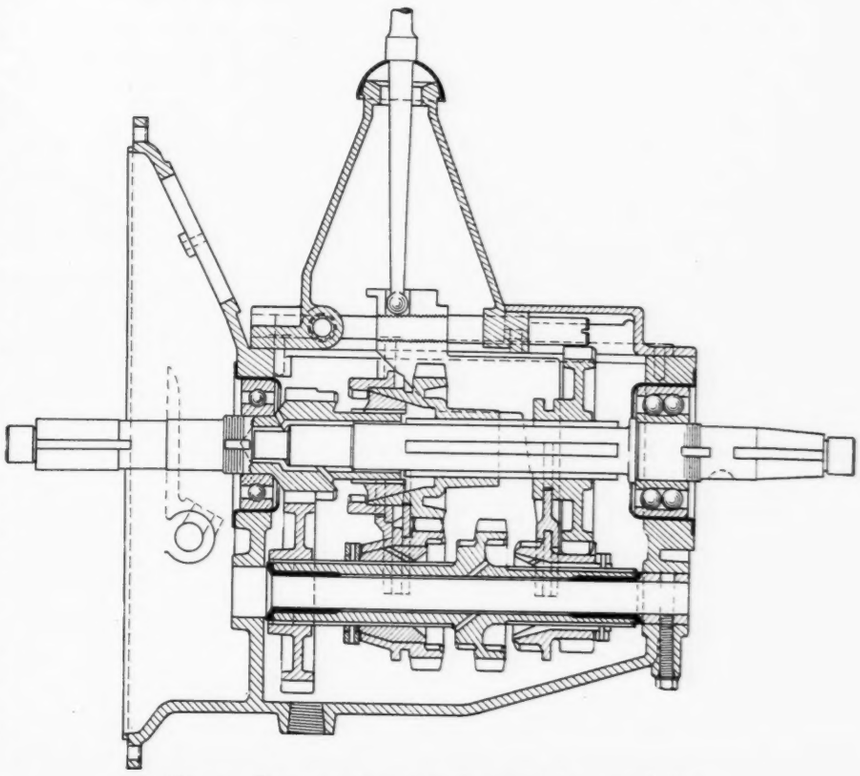
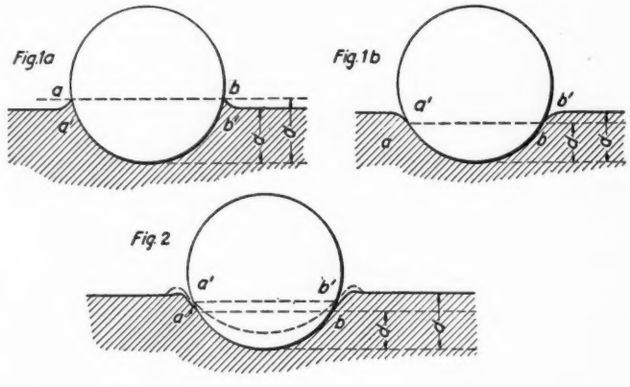


Fig. 2. Ross synchronized three-speed transmission

Need Shown for *Changed* Brinell Hardness *Test* Methods

Investigation shows that in tests measurements should be made while ball is under load. Elasticity of metal influences results otherwise.

As a result of extensive experimentation, Prof. K. Honda and K. Takahasi have come to the conclusion that in determining the indentation hardness of metals the diameter of the impression made should be calculated from the depth of the impression measured while the indenting implement (the ball) is under load, instead of being measured directly after the load has been removed. There is no material difference in the results obtained with the two methods when applied to soft metals, but the differences are very great when applied to hardened steel. The difference is due to the elastic recovery of the specimen after the load is removed. It has been shown also that if the hardness numbers are determined by measuring the depth of impression with the load applied, they will bear a much simpler relation to hardness numbers obtained by other hardness testing machines, based on different principles.



The first results of their research work were communicated by the investigators to the Iron and Steel Institute three years ago, and additional data were presented in a paper read before the same body at a recent meeting. In a general way the later results confirmed those first obtained. It was found that the ordinary hardness number is always greater than that obtained if the diameter of the impression is measured when the load is on. In the case of hard quenched steels the latter number is only half as large as the former. The authors state that their contention that the impression should be measured while the test piece is under load is supported by the behavior of soft, elastic materials, such as rubber. If it were attempted to measure the impression on rubber with the load removed, it would be found to be zero, corresponding to an infinite hardness, which is absurd. In reality the hardness number is a definite small number.

The new experiments were made with the same machine as the earlier one but with the harder Hultgren balls, on specimens of cubic form measuring practically 1 in. along the edges. The load was always 3000 kg. and the time of application 30 sec. In the case of soft metals the Brinell number H' (measured when the load is on) may be greater, equal to, or less than H (measured when the load is off), according to the nature of the substance tested. But in the case of carbon steels the latter number is always greater than the former, especially in the case of quenched steels.

The usual precautions were taken by the investigators to calibrate their instruments and to check their measurements in every possible way; it is not necessary to go into this phase of the work here.

The main causes which produce the large difference between the two series of hardness numbers are the elastic recovery, not only of the impressed portion, but also of the surrounding portion, and the piling up of metal around the impression. An investigation made by Lieber showed that the Brinell hardness numbers determined first while the load was applied and then when removed, that is, H' and H, differed from each other, and that in some cases the former was greater than the latter, while in other cases the reverse was true. He explained the difference by the piling up of the metal around the impression as shown in Fig. 1a, or by its depression as shown in Fig. 1b. In the former case H was less than H' and in the latter, greater. In both cases the boundary line of the contact surface did not change sensibly on removing the load.

The authors examined the impression made by means of a microscope and found that in cold-rolled copper it resembled *a* and in annealed copper *b*. It appeared that the deformation depended on the structure rather than on the hardness of the material. In the general case of the harder metals the form of the surface under load is shown by the full line in Fig. 2. Just outside the impression a depression is observable, which in turn is surrounded by an elevation. The latter reaches a small maximum and then gradually decreases until it vanishes. The height of the elevation and the depth of the depression depend, of course, on the nature of the metal; the elevation may amount from 0.02 mm. to 0.06 mm. and the depression to still more. The dotted line in the figure represents the general form of the depression surface of the specimen after unloading. *ab* being the diameter of the circle of contact when the load is on; it does not differ sensibly in magnitude from

$a'b'$, which is the diameter of the impression measured when the load is off. From the figure it is evident that H' is less than H, this corresponding to the case of hard metals such as quenched steels.

The cause of the difference between the two methods being known, the question arises—Which is the more correct? Where the impression surface is of the form a, ab is the diameter of the impression when the load is off and $a'b'$ is that of the impression calculated from the observed depth of impression under loading. Since the elevation around the impression is a secondary effect due to the plastic flow of the metal caused by the impression, it is not reasonable to take ab as the diameter of the impression, and $a'b'$ must be taken as the true diameter. Where the impression surface is of the form b, ab is the diameter of the impression when the load is off and $a'b'$ that of the impression calculated from the observed depth of impression under loading. In this case the actual depression of the ball is d' and not d; hence, though the contact surface between the ball and the specimen is limited to the portion of the spherical surface surrounded by the circle ab, it is more reasonable to take $a'b'$ as the diameter of the impression. The same applies to the general case of the deformation of the surface shown in Fig. 2.

It is plain therefore that in every case the Brinell number measured under loading must be taken and not the usual number taken after unloading. If this correction be made the hardness numbers of quenched steels are reduced to nearly 50 per cent.

The Brinell numbers for different metals, obtained with different hardness testers, based on different principles were compared to determine whether H or H° bore the simpler relationship to the hardness numbers given by the other testers. The machines used were a Brinell tester, a scleroscope, an impact hardness tester, and a pendulum hardness tester. The specimens used were copper, brass and steels containing 0-1, 0-3, 0-5, 0-7, and 0-9 per cent of carbon. The results of the measurements are given in table I, and the Brinell numbers are compared graphically with those given by the other three machines in Figs. 3, 4 and 5. Fig. 3 makes it evident that the Shore-H° curve is much simpler than the Shore-H curve. As usual, the impact hardness number was measured by the energy absorbed to produce a unit volume of indentation. In Fig. 4 it will be seen that the impact hardness-H° curve is almost linear, but the impact hardness-H curve is not. A similar remark also applies to the pendulum hardness tester, as seen from Fig. 5.

As the Brinell hardness measured under load, agrees better in principle with the results obtained by the other types of hardness tester, than does the Brinell hardness measured after unloading, it is suggested that the definition of Brinell hardness should be stated as follows: The hardness is measured by the ratio of the applied load to the surface of the impression under the load. Formerly, there was no means of measuring the diameter of impression under the load, but at the present time there are several types of depth-gage, by which the depth of impression, and hence its diameter, can be measured during loading, and the new method should be adopted as soon as possible.

TABLE I

		Brinell —Tester— H′	Brinell —Tester— H	Shore Scleroscope	Impact Tester	Pendulum Tester
Copper		75	70	13	110	15.0
Brass		110	121	19	236	20.0
Carbon steels	Carbon Per cent					
Carbon steels annealed	0.1	102	112	17	176	19.0
	0.3	124	137	20	268	21.5
	0.5	145	165	23	296	24.0
	0.7	151	182	25	328	26.0
	0.9	167	207	28	396	28.0
Carbon steels quenched in water	0.1	265	400	50	681	53.0
	0.3	310	500	64	830	68.5
	0.9	370	585	88	947	88.0
Carbon steel quenched in oil	0.5	191	225	32	419	30.5

The fact that the hardness of the metal in the portion surrounding the impression actually increases with the intensity of pressure has already been confirmed by an earlier experiment carried out by the authors. This increase is attributed to the hardening of that portion caused by cold-working during the process of compression, that is, it is due to internal stress. The latter increases with the degree of cold-working, but as every metal has its own yield point, the internal stress, and consequently the hardening due to cold-working, cannot increase without limit, but attains a certain asymptotic value as the degree of cold-working steadily increases.

This conclusion has been confirmed by recent experiments, though some of the earlier experiments* resulted in a slight diminution of hardness in the case of heavy loads. According to the author's opinion, this diminution had no connection with the nature of the metal, and was due to a defect in the Brinell method. In this method, so long as the impression is small as compared with the dimension of the ball, the intensity of pressure is not much augumented by increasing the total pressure; but when the diameter of the impression approaches that of the ball, the increase of the applied pressure augments the intensity of pressure roughly in proportion. Hence, with deep impressions for an equal increment of pressure, the depth of the impression or the contact area increases very rapidly in the latter case as compared with the former, and the hardness number, which is measured by the ratio of the total pressure to the contact area, apparently diminishes. This does not, however, mean an actual diminution in the hardness of the metal, but it is due to an imperfection in the Brinell method.

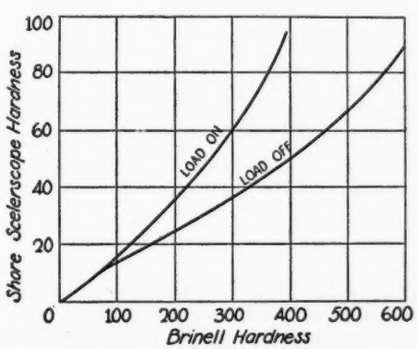


Fig. 3

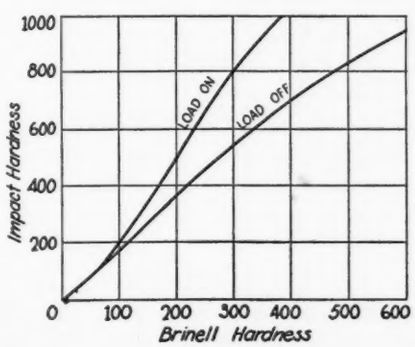


Fig. 4

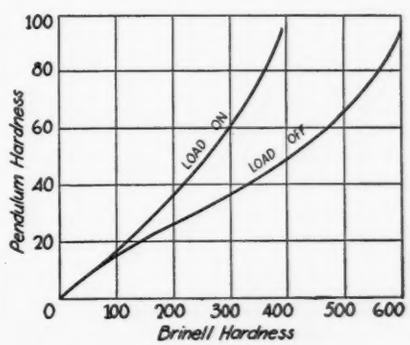


Fig. 5

New London Six-Wheel Bus Has Inter-Axle Differential

Seats 68 passengers in fully inclosed double decks. Westinghouse air brakes operate on six wheels. Rear springs are placed under frame.

By M. W. Bourdon

THE London General Omnibus Co., largest bus-operating concern in London, has received official sanction to run a new type of six-wheeled bus produced by its subsidiary, the Associated Daimler Co. With certain modifications the same chassis will be sold by the latter concern for provincial services and for export.

The chassis is designed to carry a 68-passenger covered top-deck body in the shortest possible length and in accordance with the limitations imposed by the Ministry of Transport regulations, the latter covering such points as overhang of body and the maximum overall width.

General view of new London six-wheel bus built by Associated Daimler Co.

This new chassis departs from previous practice in six-wheel designs in a notable respect, for it has a differential taking effect between the two rear axles, though actually located in front of the foremost of the pair. Its object is to insure that each axle carries its proper share of the drive, for, as the designers point out, without such provision it is possible under ordinary conditions when one pair of tires is worn more than the other pair, or inflated to a different pressure, for the whole of the transmitted torque to be passed through one axle only, the other over-running. Excessive tire wear has been observed on that account by British bus operators. The advantages are not, of course, all in favor of the inter-axle differential, because under certain conditions the benefit of four-wheel traction will be lost. Whenever one wheel loses contact with the road or effective adhesion it will spin, the other three becoming inoperative. But this point is considered of less importance than the equal distribution of driving torque between all four wheels under normal conditions.

For London service the chassis has a six-cylinder Daimler-Knight sleeve valve engine of 97 x 130 mm. bore and stroke, developing 51 b.hp. at 1000 r.p.m. and over 100 b. hp. at 3000. Magneto ignition is used, a Zenith carburetor, pump water circulation with thermostatic control, forced lubrication to the eight main bearings (dual at rear) and big-ends and all bearings of the valve operating eccentric shaft and timing chain. The carburetor air intake has a cleaner, while in the oil circulation is a filter. The cylinders are in blocks of three, and all accessories are on the left of the engine where they can be reached without disturbing the driver's seat on the right—for the bus is of the driver-beside-engine type.

For provincial services and export a larger engine is available. This has mushroom valves and is of a slower speed type than the other, with a bore and stroke of 108 mm. x 140 mm. for its six cylinders; it develops 60 b.hp. at 1050 r.p.m. and 90 b.hp. at 1800. The ignition and carburetor are the same as in the other case, but thermosiphon circulation is used—with thermostatic control—and the lubrication is by pump and splash. The cylinders are in pairs with heads bolted together to afford the rigidity of a block casting.

In both cases the engine is carried on a sub-frame mounted in the main frame on rubber blocks. To enable the engine to be withdrawn easily as a whole, the radiator and the front cross member of the main frame can be readily detached, after which, by removing the bolts of the sub-frame, the latter with the engine can be drawn out forward.

Transmission details include a single-plate dry clutch from which power passes through a coupling shaft with fabric disk joint to the four-speed gearset, which has spur gears for the indirect ratios; the direct drive is on high. The gears are case-hardened and ground. The indirect ratios are: 5.12, 2.87, 1.69, and reverse 5.12. A rear axle ratio of 10.33 to 1 is used for London work, but with the larger but slower speed "provincial" engine the reduction is 8.4 to 1. The gearshift lever being on the right of the driver considerably forward of the gearset, the long operating shafts for the selector rods alongside the gearset are carried in spherical bear-

ings to prevent binding as a result of frame distortion.

From the gearset the drive is transmitted by an open and divided propeller shaft with a central and self-aligning bearing and three metallic (Spicer) universals to the casting of the inter-axle differential. Thence it passes through the star pinions to the sun wheels the rearmost of which is splined to a hollow worm shaft. The worm of the latter engages with the worm wheel surrounding the differential of the front driving axle. To the other sun wheel is keyed a solid shaft that passes through the hollow worm shaft just mentioned to a universal joint between the axles and then to the worm shaft of the rearmost axle, which also has its own differential.

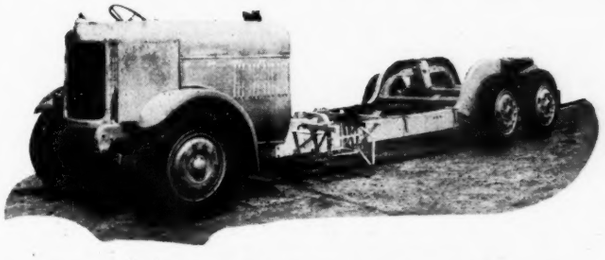
The twin axles are of the double-reduction type, placed 45¼ in. apart. Each resembles the rear axle unit of the most recent four-wheeled London bus (the N.S. type), having its worm below the worm wheel, with transverse driving shafts leading to internal spur gearing on the road wheels. The internal gear drive is inclosed in a grease-proof casing.

To secure the widest possible base for the body by the spacing of the frame side members, the rear springs are located under the latter, and to enable this to be done the side rails, after falling to the extent of approximately 12 in. in line with the flywheel and continuing parallel 20 in. above the ground for a considerable distance, are given a big sweep up to form an arch over the springs and axles. Of the double cantilever or inverted dual half-elliptic type with their ends attached to the axles by spherical joints in place of shackles, the rear springs (one above and one below the axle center at each side) are bolted at their centers to brackets free to pivot on the outer ends of a stout tubular cross-shaft, which lies midway between the two axles and is located by long horn brackets bolted inside the frame and bracket plates outside. Another tubular cross-member joins the two-horn brackets just above the cross-shaft. The spherical attachments for the spring ends to the axles allow for tilting of the latter without twisting the springs, and for the same reason the springs are permitted 1¼ in. side "float" at their center points of attachment.

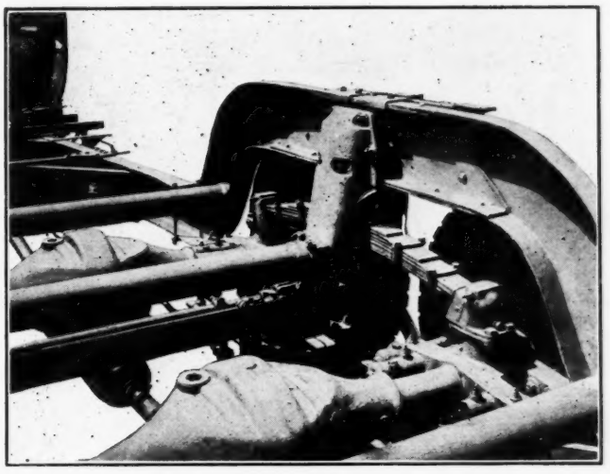
Quick Removal of Rear Axles

The whole of the rear bogie and spring scheme has been planned to allow for easy and quick removal of the rear axles. By removing the bolts securing the horn brackets and their struts to the frame and raising the rear end of the latter, the bogie as a unit can be drawn away rearward.

Behind the rear axles the frame sweeps down and ends abruptly upon reaching a height of 24 in. above the ground; at that point an extension at each side for the rear platform is bolted on at such a height as to give a single step up from the ground. Alternatively, the 24 in. level can be continued for the platform, with two steps up from the ground, the latter arrangement



Very severe frame kick-ups at front and rear leaves frame but 20 in. above ground for most of its length. Note forward right hand drive



Details of rear axle construction showing unique method of spring suspension employed

being preferred by some provincial and oversea bus operators, especially where roads are bad and steep bridges have to be negotiated.

Braking effort is applied through all six wheels by a Westinghouse air equipment, though the pedal is also connected directly to the shoes in one pair of rear wheel drums, so being operative in the event of the air system failing. The brakes applying to the other pair of rear wheels can be operated independently by the hand lever, only the front shoes being actuated by the vacuum servo alone.

At present the braking system just outlined applies only to chassis sold for other than London services. For the latter the vacuum system has not yet received the approval of the licensing authorities, so only rear braking directly operated by pedal and lever is being fitted to metropolitan buses at present.

Detachable disk wheels with 36 x 8 in. Dunlop pneumatic tires are used. Steering is by worm and worm wheel with a sharply raked column leading to the steering gear housing located at the extreme right-hand front corner of the frame, whence a drag-link runs rearward from the drop-arm to the swivel arm on that side. The turning radius is 64 ft. The front axle is a dropped H-section stamping and supports the chassis on half-elliptic springs shackled at their rear ends.

With seating on the lower deck for 32 passengers and on the upper deck for 36, there is 72 in. headroom for the former and 69 in. for the latter, the total height of the loaded vehicle being 14 ft. 3 in. The rear platform length is 43 in.

Moquette velvet is used for the fully upholstered seats in both lower and upper decks. Over the wheel arches in the interior the seats are longitudinal; the others, facing forwards, have backs consisting of upholstered sheet steel with a view to saving thickness that can be given to increasing the knee room for passengers behind. Complete as described the body weighs 4700 lb., while the chassis alone weighs 9400 lb.

In the London bus the gasoline tank, for gravity feed, is enclosed by the engine hood; but in the other model there are two tanks outside the frame, one at each side, with a capacity of 56 Imperial gallons and vacuum feed. The lighting generator is belt-driven and is located under the driver's seat with the brushes instantly accessible by removing a panel from the seat; it has a maximum output of 700 watts for a lamp load of 450 watts. An engine starting motor is not fitted as standard but provision is made for one.

Ferroxyl Test of Plated Coatings Applied by New Method

No special equipment required and work can be carried out without previous experience. Process is described in paper by American Chain Co. chemist.

CERTAIN improvements in the method of applying the ferroxyl test to protective coatings are described in a paper read before the American Society for Testing Materials at a recent meeting at French Lick, Ind., by Karl Pitschner, chief chemist, research department, American Chain Co.

Mr. Pitschner in his paper points out that the principle of the ferroxyl agent has long been used in the detection of porosity in electro-plated coatings. The usual method of applying the test was described by William Blum and C. F. Thomas in a paper presented before the American Electrochemical Society in September, 1925. Briefly, a hot solution containing potassium ferrocyanide, sodium chloride and agar-agar is flowed in a thin layer over the surface to be tested. As it cools, this solution quickly hardens to a jelly. The sodium chloride reacts with the iron exposed at the pin holes. A little iron goes into solution and reacts with the potassium ferrocyanide, forming a deep-blue coloration in the immediate vicinity of the hole in the coating, which is probably Prussian blue, a mixture of a number of ferrocyanides. If a permanent record is required the layer of jelly is removed intact to glass or paper and dried.

Careful and Tedious Method

Mr. Pitschner says that in practice this method of applying the ferroxyl reagent is very tedious and requires careful manipulation. The operation must be performed in a dust-free atmosphere, to prevent contamination of the solution. This fact excludes its use as a practical plating-room test. The reagent must be kept hot in a water bath which is usually not convenient. With continued heating it is almost impossible to keep the solution from becoming lumpy, due to a film drying on the surface and later breaking up into small bits. If a permanent record is desired, the solution must contain exactly the right concentration of agar-agar, so that it will be sufficiently fluid to flow readily over the surface and still harden quickly to the point where it may be removed intact. The author found, at the beginning of his work on this reagent, that substitution of 20 per cent of ethyl alcohol for that amount of water improved both flowing and hardening qualities. In making a permanent record, the transference of the jelly film from the surface tested to paper requires the most careful handling, and even then very frequently a breaking of the film results. Necessarily, the surface from which a permanent record can be made is very small, at the most eight to ten square inches. In drying the film on paper, the agar shrinks, the paper is discolored and warped, the original dimensions of the area tested are lost, and the salt frequently crystallizes out, which results in an unsightly and unreliable record.

These difficulties and faults in the application of the "ferroxyl" test as a practical routine method for platers led the author to study various means of improving this test and adapting it to use in the shop as well as the laboratory. The idea was conceived of coating paper with a thin film of the reagent and immediately spreading it over the surface to be tested, allowing it to remain for a few minutes. Fairly good records were obtained in this way. Later it was found that the reagent could be sprayed on the paper, dried in an oven and the paper kept indefinitely without deterioration. Paper prepared by this second method was merely moistened on the sensitized side and spread over the dry surface to be tested. After removal it was found possible to wash all the reagent out of the paper with water, leaving only the blue spots indicating the pin holes.

The first prints made with the sensitized paper showed the pin holes only with a light blue color. The "ferroxyl" reagent for treating the paper had been made up according to directions in the paper by Blum and Thomas, mentioned previously. While this solution was found very satisfactory when spread in a comparatively thick layer directly on the surface to be tested, it was evident that the concentration of the compounds entering into the reaction was not sufficiently high to get the best results with a thin film of the dried reagent on paper. Accordingly, the concentration of the various ingredients was increased 50 to 100 per cent. A part of the water was replaced by ethyl alcohol. This altered solution was filtered while hot through glass wool in a 250-cc. dispensing burette held over a gas hotplate to keep the solution from solidifying. This filtration removed all foreign material and clots of blue coloration in the solution.

The paper sprayed with the altered reagent proved very satisfactory. The blue coloring at the pin holes became intense. The boundaries of the spots became very definite due, no doubt, to greater amount of agar-agar present. At this time the paper was being tested on a double coating of nickel plate on copper plate on steel. A few brownish-red spots were noticed on some of the test papers which had been used.

Tests on a nickel plate on pure copper sheet proved that the red spots were due to pin holes through to copper but not to steel. The brownish-red compound formed is probably copper ferrocyanide. It was later found that by using a solution of ammonium citrate and ammonium carbonate instead of water for moistening the paper, a record could be obtained of the porosity of nickel or chromium plate on a copper or brass base

which was fully as definite as the print through to ferrous base. However, the solution of ammonium citrate should not be used when porosity through to a ferrous base is to be tested, as it hinders the formation of the blue coloration.

For testing automobile bumper bars, first plated with copper and then with nickel, the test paper will show pin holes through to the iron, pin holes through to the copper, and the points where the nickel is almost buffed through to the copper.

Mr. Pitschner claims the following advantages for the method of application of the process above described:

1. No equipment is required.
2. The only supplies needed are test paper and water. If the material to be tested is greasy, a solvent like carbon tetra-chloride should be used to clean the surface before applying the paper.
3. Contamination from dust in the air is reduced to a minimum by the rapidity and mode of application.
4. Any person can apply the test without previous instruction.
5. The test is complete in about 3 minutes, including washing out of excess reagent.
6. The test is non-destructive. If the bar is washed off soon after the paper is removed, buffed surfaces are not even tarnished.
7. A permanent record of quality of production in the plating plany is obtained. All of the above features make this method of applying the ferroxyl tests of value to plating departments and to buyers of electroplated work and tin plate.
8. Any size prints may be obtained by laying down adjoining sheets of the paper. The sheet used is, of course, limited to a size and shape which can be rapidly and conveniently handled.
9. The porosity of material such as tin and aluminum foil may be tested by placing the foil on a surface of iron and applying the paper on top of the foil.
10. For testing nickel and chromium plate, the ferroxyl test as compared with the salt spray will show up in three minutes all of the failures which the salt spray will develop in 25 to 50 hours. If a print is made by means of the paper and the sample then put into the salt spray, the points of failure of the coating can be checked point for point by comparing the print and the bar from the salt spray.

Developments *in* European *Air* Services

DURING the past year German air transport service has been completely reorganized. Following the example set by Great Britain, where a number of individual concerns were merged into the Imperial Airways, Ltd., the German services have been combined under one management, the Luft Hansa. During the past year more than 40,000 passengers were carried on the various lines of the Hansa, while the amount of freight carried has not yet been disclosed. During the current year additional lines are to be established. both domestic and international. It is planned to increase the speed of travel on international lines by reducing the number of landing points and making domestic lines serve as feeders to international lines at these points.

New international lines will be opened between Germany and Czechoslovakia and Germany and Austria, and a line now operating between Danzig and Kalmar will be extended to Stockholm. A service by seaplanes will be established between Cologne and Rotterdam, following the course of the Rhine Duisburg and Ruhport. The Berlin-Amsterdam-London line will be operated by the Luft Hansa and the Cologne-London line by Imperial Airways.

New Lines Planned

Lines to points in Southern Europe are also projected. Thus a service will be operated between Munich and Milan, Italy, which will later be extended to Rome. Another service will follow the route Munich-Basel-Marseilles-Madrid, seaplanes being used over the Mediterranean portion of the route. For the Munich-Rome and the Munich-Madrid lines, which it is hoped to open early in 1928, engines have been ordered of the Napier Company in England. The planes will be built by the Luft Hansa itself which controls most of the German aircraft industry. The wide experience of the concern in maintaining flying services is said to put it in a particularly favorable position to manufacture machines for such services that provide the comfort, convenience and safety needed.

During the summer the service from Stettin to Oslo, Norway, is being resumed, and the line from Konigsberg to Moscow will be extended to Finland.

Italian Line Organized

The Italian Aero Lloyd has been organized in Italy with the object of establishing and operating air transport services in Italy. Headquarters will be maintained in Rome and the company will work with Italian capital exclusively. The board of directors has seven members, including General Tarditi, Engineer Caproni, Financier Reari, Commander Carbone, Commander de Reuzis, the honorable Vaccari and Sea Captain Baraldi. It is planned to establish a complete network of air-lines connecting all parts of the peninsula and also providing services to the colonies. The first service of the Italian Lloyd will be that from Meran to Milan and Brindisi, which will be inaugurated next spring. The seven promoters of the new enterprise were received by Mussolini, who, after having been acquainted with their project, explained to them how he regarded the development of Italian air services and how his government would assist them in their enterprise.

A PROPOSED American Standard for shell end mills and cutter clamping screw has been sent out for discussion by the American Engineering Standards Committee, being the work of Sub-Committee No. 5 of the Committee on the Standardization of Machine Tool Elements. The proposed standard comprises four tables of dimensions, as follows: Dimensions of shell end mills, dimensions of arbor ends for shell end mills, dimensions of draw-in bolt for fastening mill to arbor and dimensions of wrench for draw-in bolt which holds shell end mill to arbor.

A BILL has been passed by the Congress of Brazil creating a road fund for construction and maintenance of highways in the Republic, in conjunction with State governments. The revenues are derived from increased import duties of 20 per cent on automobiles, buses, trucks, chassis, motorcycles, sidecars and accessories.

NEW DEVELOPMENTS—Automotive

Welding Spark Plug Shells

A NEW method of uniting the two parts of spark plug shells that clamp the center portion of the insulator by electric arc welding is described in General Electric Review by C. E. Becker, of the General Electric Company, Industrial Department, Fort Wayne Office. By this method the two halves of the steel shell and two copper gaskets are assembled on the porcelain core in a chuck or arbor which exerts a pressure of 60 lb. or more, depending on the type or size of plug. After assembly, the plug is revolved in the special arbor for the welding operation.

In the accompanying illustration the plug on the left is shown ready for assembly by the welding process; the plug in the center is shown cut open after welding to demonstrate that no injury is caused by the heat of welding, the porcelain core being only slightly discolored; and at the right two plugs of a different style, the upper after assembly by welding and the lower the same plug after finish machining and ready for the bluing oven.

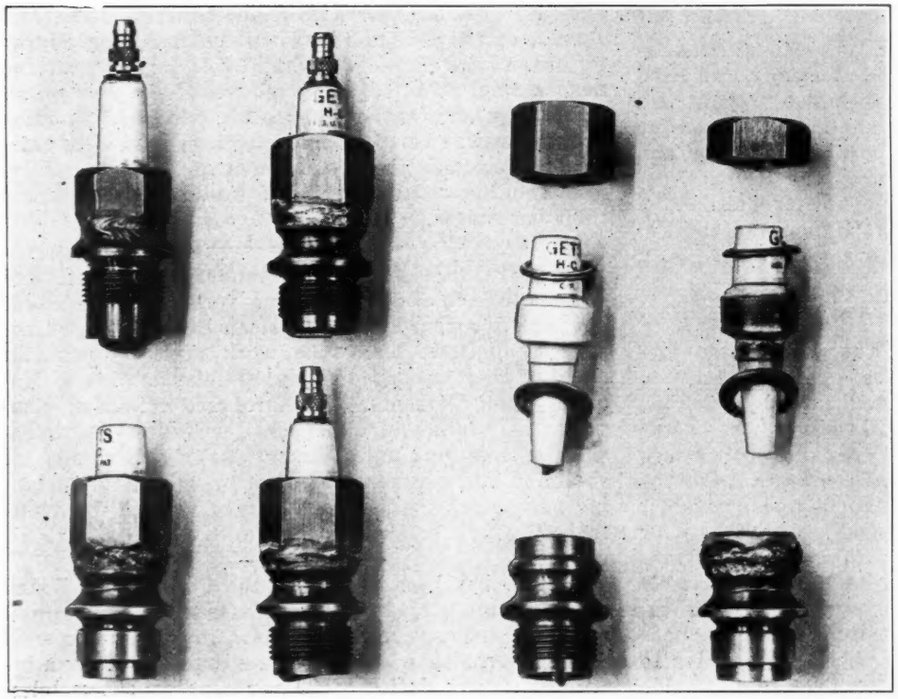
The advantage of this type of construction appear to be as follows:

No tendency to leakage due to the expansion and contraction of the shell which might cause a mechanical joint to loosen.

Fewer machine tool operations.

Materially reduced number of rejections because the assembly is done by machine instead of by hand.

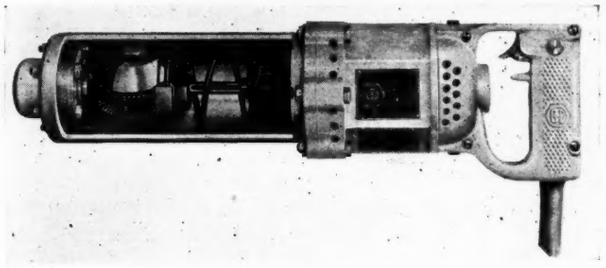
For making these welds a welding current of 150 to 175 amp. is used, furnished by a single-operator welding machine of the brush-shifting type. It is understood that patent applications are pending on this method of assembling spark plugs.



Metallic-arc-welded spark plugs in various stages of manufacture

Electric Hammer

THE accompanying photograph gives a cut-away view of the new Black & Decker electric hammer. A universal motor is used of the same type as those employed in Black & Decker drills. The armature turns at about 10,500 r.p.m. and is equipped with a fan to draw air around the motor for cooling purposes. The armature shaft is hollow to accommodate the spline shaft upon which the reciprocating mechanism is mounted.



Cut-away view of Black & Decker electric hammer

This mechanism, which actually strikes the blow, consists of a drop forging upon which are mounted two bevel gears weighted on one-half their area. These gears are driven by a pinion on the spline shaft and rotate in opposite directions. When the two weights are together at the bottom the whole reciprocating mechanism moves downward and imparts a blow on the oil-tight piston which transmits the blow to the drill or cutting tool. The similar force exerted when the weights come together at the top is absorbed by the heavy coil spring shown in the illustration.

Centrifugal Coupling

Through the use of a centrifugal coupling mounted on the end of the armature shaft, which acts as a shock absorber, the motor does not get any of the shock of the blow. The piston in the nose of the hammer is a suck fit which prevents any oil from

Parts, Accessories and Production Tools

passing. It is supported by a heavy coil spring which absorbs the hammer blows when running idle. The hammer strikes 2300 blows per minute. The working mechanism operates in a bath of oil and is sealed against dust and grit.

New Conveyor Equipment

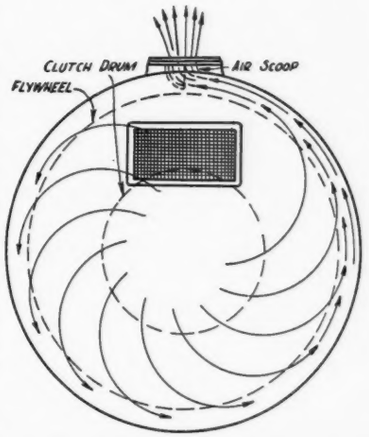
LINK BELT CO., Chicago, has placed on the market an anti-friction belt conveyor idler and return roll equipment. The outstanding feature of the idler is the protection provided by a labyrinth grease seal mounted in a grease cap which also serves as an outboard reservoir and lubricates the bearing on both sides. This is protected by a deflector plate which deflects dirt, dust or any foreign material away from the bearings and grease seal. Bearings are Timken tapered roller type entirely inclosed in the roll hub.

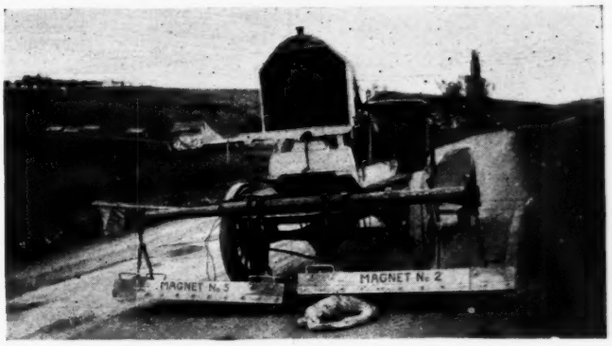
The rolls are mounted on a self-cleaning T base and are interchangeable. The entire frame is riveted. The roll shells are carefully machined to obtain uniformity of wall thickness while the heads are dished for rigidity and strength. Rolls are supplied in various materials such as a special iron, for use in coke plants, which resists the corrosive action of sulphur fumes and the abrasiveness of coke dust and granitized material for handling such things as salt, alkali and similar materials which cause incrustation, pitting and rusting of ordinary steel or iron.

Idler rolls are supported in malleable iron brackets designed to carry the ends of two adjacent rolls, thus obtaining proper alignment of the rolls. Roll shafts are supported at both ends close to the rolls.

Safeway Six-Wheel Coaches Uses Ventilated Clutches

A CLUTCH ventilating system is being used on Safeway Six-Wheel buses. Circulation of air is accomplished without adding any moving parts by using the rotating fly-wheel and clutch housing as the rotor in a centrifugal type blower. Air is admitted through a screen which replaces the usual clutch housing inspection plate and is discharged by a scoop and opening at the top of the housing, as shown in the diagram. A reduction of eighty per cent in trouble with burned out clutch disks following the adoption of the ventilating system is reported by the company.





Highway magnetic nail picker developed by State College of Washington Experiment Station

Clearing the Highways

AN unique device designed to pick up nails, tacks and similar metallic materials from the surfaces of roads to prevent injury to tires has been developed by the Engineering Experiment Station of the State College of Washington. The equipment consists of two specially designed magnets each of which is strong enough to pick up a loose nail at a distance of six inches or more from the ground. In operation the magnets are carried about two inches above the ground so that the excess magnetic force picks up nails which have been covered by loose gravel or are partially imbedded in the road surface.

Electric power to operate the magnets is supplied by a Ford engine driven generator, the whole equipment being assembled on skids so that it may be carried on a truck as shown in the accompanying illustration. In operation on the roads in the vicinity of Pullman, Wash., a surprising amount of nails and other iron and steel articles, even to spark plugs and speedometer chain, have been picked up. In one mile of road in a certain locality 13½ lb. of such material was picked up by this equipment.

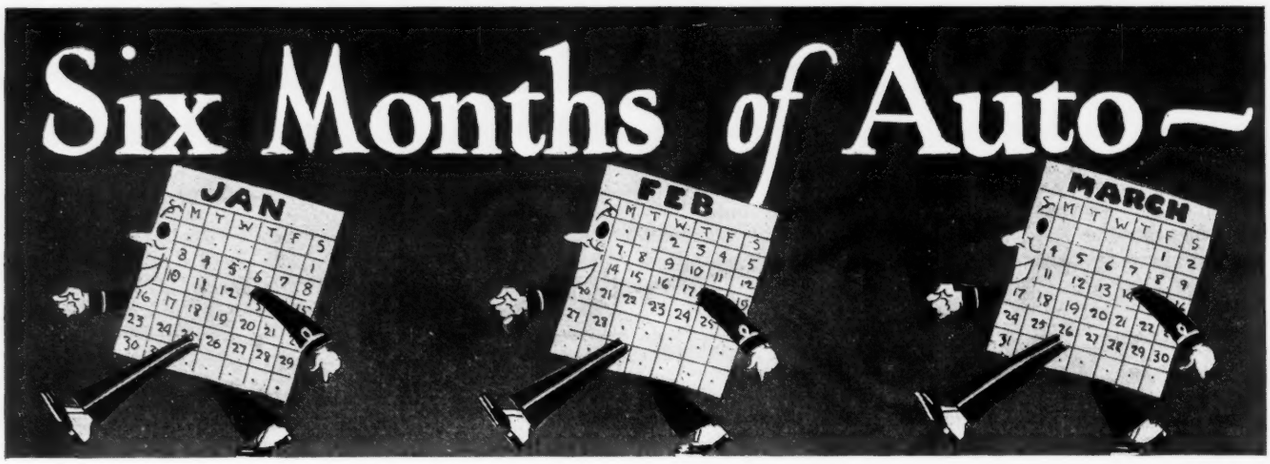
Truck Body and Cab Mounting

A LIMITED relative movement of chassis frame and body, or cab is provided by the Harper Hanger, a device which is mounted between body sills and frame side members replacing the standard body brackets.

The device consists of a single steel ball mounted between upper and lower steel cups which are in turn attached to corresponding bracket members. The weight of the body is thus carried on a number of steel balls.

The hanger mounting absorbs vibration, road shock and frame distortion and assists in starting and stopping because momentum of the chassis is communicated to the body after a short time interval.

The Harper Hanger, which has been used on trucks and buses in the vicinity of Boston for some time, is being marketed by the Harper Hanger Corp., 18 Amity St., Brooklyn, N. Y.



What Has Happened in the Industry During First Half of the Year?

WHAT has happened, automotively speaking, during the last six months?

The question is raised (and answered below) because it is only through events of the past that we can read trends of the future, and by glancing back briefly over the things that have transpired since January 1 we can gain some idea of the industry's probable course during the remainder of the year.

At any rate, it is interesting to see what has already taken place in 1927—confining ourselves, of course, only to the high spots as we go along.

There has been the usual run of new cars brought out. Ford rumors have pervaded the industry during the entire period with no one knowing yet just what he is going to do except that the rumors culminated in an official statement that a new car was to be placed on the market to replace the Model T and that it is to be extensively advertised. Compulsory insurance has engaged the interest of the industry and the various attempts to enact laws to this effect in various states have brought forth alarms and excursions from nearly all parts of the industry.

Aviation activities have received a remarkably large amount of attention so far this year, the world's record for newspaper space for a single event having been made, without any doubt, in the publicity accorded Col. Lindbergh's feat. E. S. Jordan has continued to hold the record for the number of speeches made by any automotive executive.

Prolific in New Cars

The year has been fairly prolific in new cars, several brand new names have been added to the industry while other cars have been changed to an extent which leaves only the name in its former state.

The introduction of Studebaker's infant, the Erskine Six, started the year off and was followed very quickly by the Falcon-Knight. Along in March Cadillac added LaSalle to the roster. Among the new models which have been brought out during this period might be mentioned the new Hudson and Essex cars in which, we are told, the super-six principle is "now fully released," the new Paige Eight which is fitted with a four-speed transmission and has started quite a bit of discussion in the industry; the small six developed by Jordan; the Reo Wolverine which augmented the Flying Cloud first shown to the public at the New York Show.

In other automotive lines we have seen the development of new eight cylinder passenger car engines by Lycoming and by Continental; a new Continental bus engine; a smaller variety of the A. C. F. motor coach; and the Fageol Twin-Coach.

Among the prominent automotive men who have died in the last six months are John Kelsey, of Kelsey Wheel Co.; L. L. Woodward, president, Autocar Co.; H. C. Harrison, Harrison Radiator Corp.; John W. Murray and Charles L. Sheppy, Pierce-Arrow.

Important personnel changes made during the last six months are headed, possibly, by the influx of noted engineers into the Studebaker organization early in the year. Among those joining this company were William S. James, John A. C. Warner, R. F. Kohr, T. S. Slight, Jr., Stanwood S. Sparrow and M. A. Thorne.

Walker Made Sales Manager

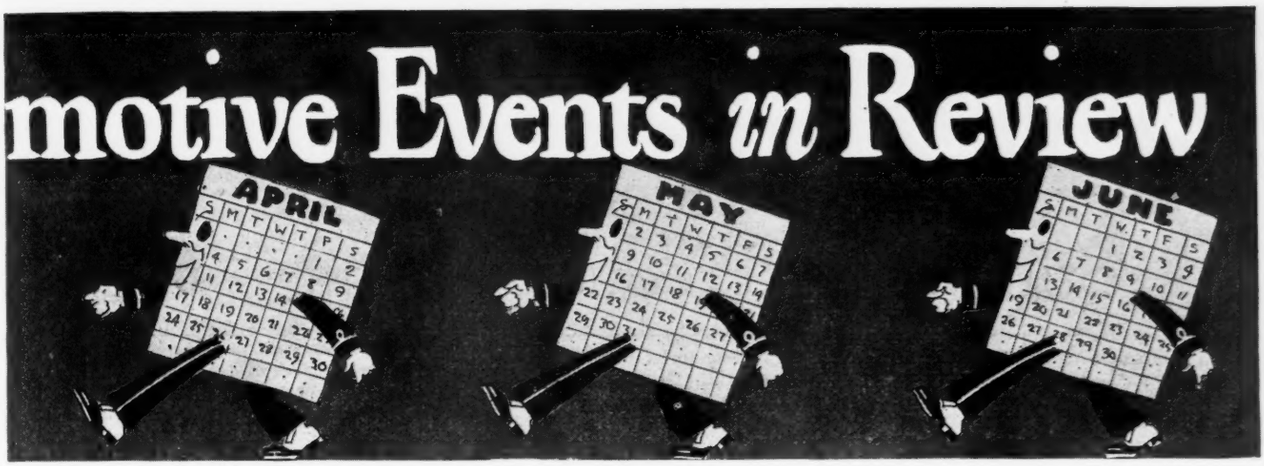
At about this same time F. B. Walker was made general sales manager of the H. H. Franklin Mfg. Co. A little later W. R. Tracy was appointed vice-president in charge of sales of the Oakland Motor Car Co. During the following week H. G. Root was reelected head of the N. A. P. A.; Paul W. Seiler was made president of Yellow Truck & Coach Mfg. Co.; and Thomas P. Archer was promoted to the presidency of Ternstedt.

Sometime later O. Lee Harrison became general sales manager of Delco-Remy; W. L. Hughson was elected president of the N. A. D. A.; and J. R. Frazer was appointed sales manager for the United States of Chrysler Corp. Early in February Harry G. Moock was named to head the Greater Market Development program of the A. E. A.; Percy Owen was appointed head of the newly organized American Brake Materials Corp., and R. P. Page, Jr., was elected president of Autocar.

A few weeks later Roy D. Chapin was elected president of the N. A. C. C. to succeed Col. Charles Clifton, who had held that position since the organization of the Chamber.

E. A. Ross became president of Ross Gear in March shortly prior to the election of R. W. Ruddon as vice-president of Federal Truck. Early in May Paul Geyser was placed in charge of sales of the cab division of Yellow.

Changes made within the last month or two and which bore headlines still fresh in our minds: W. R. Wilson becomes president of Murray Corp.; Irving B. Babcock heads Hertz Drivurself Corp.; J. S. Hunt becomes general sales manager for Star; John C. Talcott is ap-



pointed chief engineer of Pierce-Arrow; H. J. C. Henderson becomes sales and advertising manager of Fisher Body Corp. and Louis Ruthenburg is named assistant to the president of Yellow Truck & Coach.

Rumors of mergers were fairly frequent during the period although few of them developed. Among the more important corporate changes were the merger of the Westinghouse Air Spring Co. with the Cleveland Pneumatic Tool Co.; the purchase of Lovejoy Shock Absorber by General Motors; the purchase of Wolseley Motors by W. R. Morris and a merger of Singer and Daimler in England; the reorganization of Hare & Chase; the Kelsey-Hayes merger and the purchase of Paige by the Graham Brothers.

Organization of Celoron Co.

Other corporate events of interest included the organization of the Celoron Co., by Diamond State Fibre Co.; of Relay Motors by Commerce Truck Co.; of the General Chromium Co.; of a new Detroit bank in which considerable automotive capital is invested; and the purchase of Ace Motorcycle by Indian and of Manley by American Chain. Frank Fageol organized a new company to handle his Twin-Coach, and there were some tightening up of the Durant interests..

Used cars continued to attract attention of all parts of the industry and the first item of interest in this connection was the announcement by Chevrolet that it would pay dealers $50 for every Chevrolet completely scrapped. Continental later announced a rebuilding service for their engines. Late in January an official of General Motors placed that company on record as favoring the Windsor Plan for handling used car sales. In March Buick instituted the plan of selling Gold Seal reconditioned Buicks under a new car guarantee. Later in the year the dealers of several cities—Kansas City and Milwaukee among them—laid plans for cooperative junking of used cars.

Claims and counter claims of speed have filled the air during the past six months and have aroused quite a bit of interest in this subject with the result that stock car racing has been revived and many speed tests are being made under official observation. Early in February Malcolm Campbell established a new record in England in driving a car of his own design at the rate of 174.9 m.p.h. This record only lasted until late in March when H. O. D. Segrave drove a Sunbeam racer 203.79 m.p.h. at Daytona Beach.

The first stock car race was held at the Atlantic City track May 10, and a Stutz, an Auburn and a Paige finished almost neck and neck in the order named, making a speed of about 86 m.p.h. over the 75-mile course.

Glance at the Past an Aid in Reading Trends of the Future

The same day Dave Lewis in a Miller front-wheel drive racer established a new 200-mile record for 91½ cu. in. cars with a speed of 130 m.p.h. The Indianapolis race on Labor Day was won by George Souders driving a Duesenberg at an average speed of 97.45 m.p.h. for the 500 miles.

In April the Stevens' cup was offered to the manufacturer successful in completing a 24 hr. run over the Indianapolis speedway with a standard closed car at an average speed of 60 m.p.h. or better and it was won about a month later by a Stutz sedan which finished the run with an average speed of 68 m.p.h.

There were a number of miscellaneous happenings during the first half of the year of more or less importance to the industry. Cited in something of a chronological order some of these are: N. A. D. A. moved its offices to Chicago; Fred Duesenberg was presented with memorial tablet by the A. A. A.; a number of court verdicts were given concerning the status of inter and intra-state common carriers but without definitely defining it; Packard opened a new plant devoted to the construction of aircraft engines; Henry Ford presented President Coolidge with a Lincoln; Canada reduced its sales tax on cars; Ford started a daily air freight service between Detroit and Buffalo; France cut its tariff on automotive vehicles; Pontiac opened its new plant.

Transfer of Air Mail

The Post Office placed the last contract in the transfer of the air mail service from government to private operation; the N. A. C. C. defined its open shop policy; Dodge started production on its new six-cylinder car; Chamberlin flew to Germany following Lindbergh's flight to Paris.

Well, these are some of the things that have occurred during the past six months. When you get them all together they give the impression of a very busy season. Some of the items such as the used car problem, aeronautic developments and speed and regulation of common carriers probably will continue to get on the front pages during the latter half of the year. What other subjects will grow to paramount importance in the near future is something for speculation.

AUTOMOTIVE NEWS SECTION INDUSTRIES
Philadelphia, Pennsylvania Saturday July 16, 1927

Arrival of New Models Stimulating Production

PHILADELPHIA, July 16—A slightly firmer tone to automobile sales in some sections of the country is currently reported, but the seasonal trend continues to rule the market and no pronounced upturn is expected until some time in August. Production is being accelerated by those factories that have brought out new models, and favorable reception to some of the new lines accounts for a goodly part of the selling now being done.

Shipments of parts to motor car manufacturers indicate that the general level of production this summer will be well up to the seasonal average, though somewhat below the record-breaking rate of a year ago. Indeed, so far as sales and production are concerned, the industry is having a normally good year, and suffers only by comparison with the unusual activity of 1926.

While the parts manufacturers are enjoying a volume of sales, in units, that is probably as good as any in recent years, there is great difficulty in earning satisfactory profits as a result of price competition and an even greater disposition to hand-to-mouth purchasing by the car factories.

On the retail end, excessive stocks in some lines have been cleaned up by special sales at drastic reductions or by the old device of raising trade-in allowances. Although the way is thus opened to increased factory production for the purpose of stocking the dealers, the process is costly and tends to depreciate still further the selling prices of used cars, which have been more of a burden this year than ever before.

Three Americans Enter Italian Grand Prix

PARIS, July 4 (*by mail*)—Three American drivers, Frank Lockhart, Peter Kreis and Bob McDonogh, will drive in the Italian Grand Prix on Monza track, near Milan, on Sept. 4, according to a statement by Arturo Mercanti, track manager.

Fiat is putting the finishing touches to a set of 12-cylinder 91½ in. cars which will be brought out for the first time in this race.

New Colors on Pontiac

PONTIAC, MICH., July 14—New color combinations and new striping on body and wheels on the Pontiac Six line were announced this week by the Oakland Motor Car Co. Popular Indian colors are used. Head and cowl lights on de luxe models and the sport roadster are finished in the same Duco coloring as the bodies. Blue, maroon, greens and browns predominate.

M.A.M.A. Credit Men Meet in September

Three-Day Conference Called for Detroit—Committee is Appointed

NEW YORK, July 13—The Motor & Accessory Manufacturers Association has designated Sept. 14, 15 and 16 for a conference of credit executive members of the association, similar to that held last year.

The conference will be held in Detroit and the first and third days will be given over to regular meetings of the credit groups, which are now seven in number, including four dealing with manufacturers and three with wholesalers. On the second day there will be a general conference of all groups, which any member of the association may attend, followed by a dinner in the evening. Speakers have not yet been named, but members of the committee on arrangements are:

E. R. Ayles, Detroit Steel Products Co., chairman; L. F. Bomhoff, Jaxon Steel Products Co.; J. F. Monfills, Michigan Steel Castings Co.; F. T. Burgis, Motor Products Corp.; C. W. Dickerson, Timken-Detroit Axle Co.; T. M. Simpson, Continental Motors Corp.; Julian Gifford, Zenith Detroit Corp.; W. L. Burgess, Long Mfg. Co.; S. C. Reynolds, Federal Mogul Corp., and M. L. Hamlin, McCord Radiator & Mfg. Co. The committee will work with M. L. Heminway, general manager, and Arthur Fagan, credit manager of the association.

Crude Rubber at 34½c., New Low for Year

NEW YORK, July 13—With a drop in prices to under 34½ cents, crude rubber yesterday reached the lowest point of the year in the absence of buying support from dealers or consumers.

G.M. June Sales Top 1926 Figure

NEW YORK, July 13—General Motors retail sales in June were 159,701 cars and trucks, compared with 171,364 in May and representing a gain of 36 per cent over the June, 1926, total of 117,176.

Sales by General Motors car division to dealers in June were 155,525 against 173,182 in May and an increase of 39.6 per cent over June, 1926, when 111,380 vehicles were shipped. Six months sales to dealers follow:

	1927	1926
Jan.	99,367	76,332
Feb.	124,426	91,313
Mar.	161,910	113,341
Apr.	169,067	122,742
May	173,182	120,979
June	155,525	111,380
	883,477	636,087

Chicago Finance Firm Taken Over by C.I.T.

NEW YORK, July 13—The Chicago subsidiary of the Commercial Investment Trust Corp., in a deal involving approximately $4,000,000, has purchased the business of the Chicago Acceptance Corp., which has been operating in Illinois, Indiana, Wisconsin and Minnesota. The Chicago Acceptance Corp. was organized by Hudson-Essex distributors at Chicago and Minneapolis, to finance sales of Hudson and Essex automobiles, and its absorption by C.I.T. follows closely the conclusion of a contract with the Hudson Motor Car Co. for the nation-wide handling of Hudson-Essex financing by C.I.T., which is now capitalized at more than $30,000,000.

U. M. S. Distributing Lovejoy Shock Absorbers

DETROIT, July 12—According to Ralph S. Lane, president and general manager of the United Motors Service, distribution of Lovejoy hydraulic shock absorbers in the field by his organization began July 1. The new policy of distribution will bring to Lovejoy the facilities of the 23 United Motors branches and many authorized Lovejoy distributors throughout the country.

U. S. Rubber Dividend

NEW YORK, July 14—U. S. Rubber Co. has declared the regular quarterly dividend of $2 on its first preferred stock, payable August 15 to stock of record July 20.

Ford Announcement Believed Near; Dealers are Taking Orders "Blind"

New Model Said to Be on View at Factory for Dealers' Inspection

DETROIT, July 15—While outsiders have been unable as yet to learn anything very definite concerning the mechanical details and appearance of the new Ford model, a number of dealers from various parts of the country have visited the factory recently and are understood to have been given an opportunity to inspect the design and study its construction. They are invariably close-lipped on leaving the factory, however, and refuse to discuss what they have seen.

In the meantime Ford salesrooms all over the country are advertising by means of huge colored posters that "We are taking orders for the new Ford car," and there is an apparently well-founded rumor in Ford dealer circles that formal announcement of the new model may come very soon.

Dealers are campaigning vigorously for sales on a "blind" basis; that is, prospects are asked to place orders and make a small deposit against delivery without knowing when delivery can be made, how much the car will cost, what it will look like or what it will be mechanically.

Dealers interviewed claim they are piling up a considerable volume of orders on this basis. They say they are permitted to assure the buyer that his deposit will be refunded if he decides that he doesn't want the car when it is finally placed on public view.

The dealers themselves, excepting those who have visited the factory, apparently know little more about the new car than the public. They are in the position of selling something they have never seen fully described to customers who don't know what they are buying.

A curious situation has developed in some parts of the country as a result of the report that the production of Model T trucks would cease with the introduction of the new design. Dealers claim that this report has created a demand for the trucks in excess of the present visible supply and that they are being offered premiums over and above the list price on all they can get.

Boeing Co. in Control of Western Air Mail

WASHINGTON, July 12—The Post Office Department has transferred to the Boeing Airplane Co. control of the Chicago-San Francisco air route. The Boeing company will operate a fleet of 21 planes of its own manufacture of sufficient size to transport two passengers and the mail cargo. The entire air-mail personnel of the Post Office Department is taken over by the Boeing company.

The transfer to the private company marks the Government's first step in turning over to private enterprise the contracts for carrying the mails.

G.M. Now Financing Dealer Buildings

DETROIT, July 15—General Motors Corp. announces that the plan which it has devised for assisting dealers in financing and erecting sales and service buildings is now in operation under the administration of the Argonaut Realty Co., a subsidiary. Harry Hickie, in charge of the Argonaut company's architectural department, will supervise the activity.

Through a study of dealer conditions, General Motors discovered that many responsible dealers were not in the financial position to provide the type of building best suited to their interests and the new plan is designed to meet this situation.

When a dealer asks to be financed on a new building and satisfies the company that he needs it, a site is purchased and plans drawn in Mr. Hickie's department. When the building is erected it is leased to the dealer. Buildings are already under way in Chicago, Boston, Pittsburgh, Kansas City, and other cities.

Pontiac Cuts Prices

PONTIAC, July 14—Effective tomorrow, the Oakland Motor Car Co. will reduce prices from $30 to $50 on the Pontiac line. The reductions, it is said, are made possible by manufacturing economies resulting from the new $15,000,000 Pontiac plant. The new prices follow:

Two-four-passenger roadster, $745; two-passenger coupe, $755; five-passenger, two-door sedan, $745; four-passenger sport cabriolet, $795; five-passenger landau sedan, $845; five-passenger de luxe landau sedan, $925.

General Electric Sales Show Slight Decrease

SCHENECTADY, N. Y., July 13—Orders received by the General Electric Co. for the three months ending June 30 amounted to $78,105,247 compared with $78,972,062 for the second quarter of 1926, a decrease of 1 per cent, President Gerard Swope has announced.

For the six months ending June 30, orders totaled $155,655,828, representing a decrease of 6 per cent compared with $165,405,720 in the corresponding six months of 1926.

Business in Brief

Written exclusively for* AUTOMOTIVE INDUSTRIES *by the Guaranty Trust Co.

NEW YORK, July 15—Industrial activity continued at a reduced rate last week, while retail trade was stimulated by favorable weather. The latter factor has also had a distinctly encouraging effect on crop conditions. Commodity prices in general recovered last week, and stock quotations likewise moved toward higher levels. Money rates remained easy. Sales of 552 department and other retail stores which reported to the Federal Reserve Board were 1.3 per cent larger last month than in June, 1926.

CROP CONDITIONS

Cotton acreage in cultivation on July 1, according to the Government report, was 12.4 per cent smaller than a year earlier. The winter wheat crop, based on conditions July 1, is forecast at 579,416,000 bushels, as against 626,929,000 bushels last year.

BUILDING CONTRACTS

Building contracts awarded last month in 37 states, according to the F. W. Dodge Corp., were the largest on record, amounting to $632,478,000. This is 16 per cent larger than the figure a year ago.

BANK DEBITS

Bank debits to individual accounts reported to the Federal Reserve Board for the week ended July 6 were 11.5 per cent larger than the total for the preceding week and 18.2 per cent above that for the corresponding period last year.

FISHER'S INDEX

Professor Fisher's index of wholesale commodity prices stood at 139.9 last week, as against 138.7 a week earlier and 140.4 four weeks earlier.

FEDERAL RESERVE BANKS

Bills and securities held by the Federal Reserve banks increased $10,400,000 during the week ended July 6, a gain of $29,500,000 in discounts being largely offset by declines of $17,100,000 in open market purchases and $1,900,000 in holdings of Government securities. Note circulation rose $48,400,000, while deposits decreased $58,100,000 and reserves $42,900,000. The reserve ratio declined from 77.6 to 76.8 per cent.

The call loan rate ranged from 4 to 4½ per cent last week, as against 4 to 5 per cent a week earlier. Time loan rates were practically unchanged at 4¼ to 4⅜ per cent and commercial paper rates at 4 to 4½ per cent.

June Production 8.2% Ahead of 1926

With Ford Included, However, a Decrease of 13 Per Cent is Indicated

NEW YORK, July 14—June production of cars and trucks by members of the National Automobile Chamber of Commerce totaled 291,526 against 339,923 in May and 269,443 in June, 1926. The gain this June over last was 22,073 units or 8.2 per cent.

For the first half of the year the Chamber members rolled up a total of 1,744,040 units against 1,590,448 in the first six months of 1926, a gain of 153,592 units or 9.7 per cent.

Ford's June production is not yet known but it is not believed to be much over 20,000 units. Taking this figure as a basis for estimate, the total output of the industry in the United States and Canada was 2,132,308 cars and trucks in the first half of 1927, against 2,450,780 for the corresponding period of 1926, a loss of 318,472 units or 13 per cent.

Mays Service Now Used by 4500 Car Merchants

NEW YORK, July 12—W. S. Mays, president of W. S. Mays & Co., Inc., reports that 4500 distributors and dealers are now using purchasers disability protection, the service which the Mays company started to offer in connection with time sales early in 1925. Last year the plan was used in the sale of more than 100,000 cars and this year is expected to show a considerable gain in units and a much larger gain in volume, as higher priced classes are being reached into.

The Mays plan provides, briefly, that instalments on cars sold on time are continued to be paid in the event of illness, accident or accidental death involving the purchaser. The cost is $5 to $15 on a 12 months' cost basis according to the value of the car. The payments are continued during the illness or disability of the purchaser, thus affording protection to finance companies, dealers and time buyers.

Hupp Appoints 53 Dealers in June, 300 Since Jan. 1

DETROIT, July 11—During June the Hupp Motor Car Corp. appointed 53 new dealers, and additions since the first of the year have numbered about 300.

In the first six months the company produced and shipped 22,317 cars, against 26,943 in the corresponding period a year ago, when all previous records were broken, the gain over 1925 having been 34 per cent and over 1924, 54 per cent.

In June 2879 cars were shipped, compared with 3516 in May and 5047 in June a year ago, a record month.

Flint Woman Starts Air Trip to Hawaii

FLINT, July 15—The Buhl plane in which Augey Peddler, Flint aviator, accompanied by Miss Mildred Doran, school teacher, plan to fly to Honolulu, was delivered here last week and the pair are now on their way to Long Beach, Cal., from where they will hop off over the Pacific.

At Long Beach an expert from the Wright Co. will test the motor, which is the same as used by Lindbergh. The flight is being backed by William Mollaska, president of the Lincoln Oil Co., of Flint, and it is his intention that Miss Doran, who is his ward, will be the first woman to cross the Pacific in an airplane.

250,000th Chevrolet Built at Norwood

CINCINNATI, July 14—The 250,000th car has come off the assembly line of the Norwood plant of the Chevrolet Motor Co. It was an Imperial Landau sedan. Plant executives gathered to celebrate the incident. R. S. Montgomery, plant manager; C. F. Sawade, plant superintendent; A. F. Young, Chevrolet regional sales manager, with headquarters at the Norwood plant, and George K. Browder retail sales manager, officiated at the ceremonies.

There are now 1500 men employed at the Norwood, three times as many as when the plant started three years ago. Additions have been made which have increased the output to 12,000 cars a month.

Falcon-Knight Sales

DETROIT, July 12—Sales of Falcon-Knight motor cars totaled 5350 for the first three months, according to a statement just given out by John A. Nichols, Jr., president. June sales totaled 1924 and were 10 per cent in excess of those for May. The total valuation of the sales of Falcon-Knight cars to date is $5,430,250.

Industrial Management Conference

STATE COLLEGE, PA., July 14—The twelfth annual summer conference for industrial executives will be held under the joint auspices of the departments of Industrial Engineering and Engineering Extension of the Pennsylvania State College from Aug. 22 to Sept. 3. Costs, personnel problems, factory location and layout, time study, wage payment plans, industrial economics and other topics of like character will form the major items of discussion.

Extra Nash Dividend Sign of Confidence

50c a Share Declared on Common Stock in Addition to Usual $1

NEW YORK, July 12—Striking confidence in the outlook for the automobile industry was shown last week by the directors of Nash Motors Co. in declaring an extra dividend of 50 cents a share on the common stock, in addition to the regular quarterly dividend of $1 a share. Three months ago the stock was placed on a regular $4 annual dividend basis.

This action followed closely upon the announcement by the Nash company of new lines of cars at lower prices.

During the first six months of this year, net income totaled $9,491,735 or $3.48 a share, compared with $10,148,332 or $3.72 a share in the same period a year ago. Net income in the second quarter ended May 31 totaled $5,566,281 or $2.04 a share, against $3,925,454 or $1.43 a share in the preceding quarter and $6,010,824 or $2.20 a share in the same period a year ago.

President C. W. Nash expressed himself as very optimistic with regard to the prospects for increased Nash sales and the soundness of business in general.

Coupe at $1,570 Added to Dodge Six Line

DETROIT, July 16—A four-passenger coupe on the Senior Six chassis is being introduced by Dodge Brothers, Inc., to list at $1,570. This is the third Senior Six model thus far placed in production, a five-passenger sedan and a four-passenger cabriolet roadster, both priced at $1,595, having preceded it.

New Franklin Model

SYRACUSE, N. Y., July 12—Introduction of a new body model, a convertible 2-4-passenger coupe listing at $2,925, is made this week by the Franklin Automobile Co. By means of specially designed clamps the car can be changed from an open to a closed model in a few seconds.

Torkelson in New Position

M. W. Torkelson, for many years chief engineer and secretary of the Wisconsin State Highway Commission, has become associated with the engineering firm of Consoer, Older & Wuinlan, Chicago. Mr. Torkelson sailed July 8 from New York for South America, where he will spend six to nine months as representative of the firm, investigating a number of major engineering projects on behalf of Chicago and St. Louis financial interests.

C. M. Young to Fill New Aviation Post

Des Moines War Flyer Named as Special Assistant to W. P. MacCracken

WASHINGTON, July 14—Because of the growing interest in aviation throughout the country the Department of Commerce announces the creation of a new position, that of director of the Aeronautics Branch of the Department of Commerce and special assistant to William P. MacCracken, Jr., Assistant Secretary of Commerce.

Clarence M. Young of Des Moines, Iowa, has been chosen for the position and will become affiliated with the department at once. He was a member of the American Expeditionary Force, serving with the Aviation Corps on the Italian front, and was shot down over the enemy lines and held prisoner by Austria until the close of the war.

Approximately 2100 applications for licenses as pilots, 1600 applications for inspection and registration of air crafts, and 2000 applications for licenses as airplane mechanics are now pending before the department. In addition, inquiries are being made from several hundred cities seeking airports. The law provides for the encouragement of this commercial interest in flying and the duties of fostering it will be that of the newly appointed director.

Jordan Announces Two New Series "AA" Models

DETROIT, July 15—Two additional models in the "AA" eight-cylinder series, a 2-4-passenger "Playboy" and a 2-4-passenger sport coupe, are announced by the Jordan Motor Car Co., Inc. The former is priced at $2,345 and the latter at $2,495. Equipment on both models is the same and includes wood wheels, shock absorbers, automatic windshield wiper, engine heat indicator, dash fuel gage, rear traffic signal and clock.

New Foundry Buildings

MILWAUKEE, July 15—The Wisconsin Appleton Co., South Milwaukee, which some time ago took over the malleable foundries of The Stowell Co. in that city, has started construction work on three new buildings, including a new malleable casting unit, an annealing room and a soft cleaning room. Executives of the Appleton Electric Co., Chicago, are among the principal owners of the South Milwaukee concern.

Splitdorf Appointment

Howard Earle Cholet has been appointed to the field service division of Splitdorf Electrical Co. His headquarters will be at Atlanta, Ga.

Chrysler Theft Insurance Rate Reduced 30% by Underwriters

Clarence M. Young

War aviator of Des Moines, Iowa, who has been appointed director of the Aeronautics Branch, Department of Commerce

Estimated That Action Will Result in Saving of $2,000,000 for Owners

DETROIT, July 15—The Automobile Underwriters Conference recently promulgated new theft insurance rates on all models of Chrysler cars. The new rates show an average reduction of over 30 per cent throughout the country and it is estimated that the savings which will accrue to Chrysler owners will approximate $2,000,000.

After investigating a number of methods of car numbering which have been submitted to meet the theft situation, and after many tests, the Underwriters Laboratories found that it could not successfully alter or counterfeit the Fedco plate and listed the Fedco system as the only approved theft detection numbering system. The Chrysler Corp. pioneered in adopting this system July 1, 1925, since when every Chrysler car has been equipped with Fedco numbers.

Data Was Incomplete

Following its standard procedure the conference established its 1927 theft insurance rates on the experience for the year 1925. The 1925 experience data used by the conference in establishing rates for Chrysler cars for 1927 did not include that dealing specifically with Chrysler cars leaving the factory after July 1, 1925.

Complete statistical data covering the theft experience of these Fedco-protected Chrysler cars which left the factory after July 1, was submitted to the conference by the Chrysler Corp. The conference was able to receive this comprehensive and hitherto unavailable data because it was 100 per cent complete on all cars leaving the factory. No such comprehensive data covering all the cars leaving a factory has hitherto been available in the hands of any of the automobile manufacturers or insurance companies. The data showed so marked an improvement in the Chrysler cars manufactured after July 1, 1925, that, combined with the data already in its files, the conference found the Chrysler cars entitled to rates lower by more than 30 per cent.

Air Line Finance Plan Worked Out

NEW YORK, July 11—The Daniel Guggenheim Fund for the Promotion of Aeronautics, Inc., has authorized equipment loans for the purchase of passenger carrying airplanes for operation in the United States. The loans will be made only to existing companies on the most modern multi-engined planes of maximum safety and comfort, so that actual demonstration of performance and safety will be available as an incentive for further development of passenger air lines.

Planes bought under the equipment loan division must be designed to fly should one of the motors be disabled.

Preliminary arrangements were considered at a meeting recently in New York attended by representatives of each of the contract airmail services, including William B. Stout, Stanley Knauss and William B. Mayo of the Ford organization.

Oil Shale Decision Due

WASHINGTON, July 12—Decision will be rendered by the Interior Department within a few days as to what constitutes an oil shale discovery. Hearing on the question was given by Secretary Work last winter and since then the legal and high officials of the department have carefully considered all elements entering into the situation.

Racine Radiator Adds to Milwaukee Holdings

MILWAUKEE, July 14—The Racine Radiator Co., Racine, Wis., which recently purchased a 5½-acre site in Milwaukee for a complete new plant now under construction, has added to its realty holdings by purchasing five adjoining acres to insure adequate space for future extensions of the new plant. It is expected that the transfer of the operation from Racine to Milwaukee will be accomplished by Sept. 1.

Demand for Steel Still on Decline

Uptrend Likely to Be Slow—Orders From Automotive Plants Relatively Good

NEW YORK, July 14—If there is any change at all in steel market conditions, it is that demand as a whole has further tapered off slightly, the irreducible minimum being now almost in sight.

As the backlog of orders has dwindled ton by ton, producers' determination to adhere to current quotations has become more and more vocal. In the absence of buyers other than those who buy what they can not do without, there is no pressure on prices, and, thus properly qualified, the market may be characterized as firm. Uptrend in the demand is likely to be slow, and before the steel industry can swing over into a markedly higher rate of operation, going quotations will have to stand the test of competition among producers hungry for every worthwhile tonnage order that will come into sight in the coming month or two.

The U. S. Steel Corporation's unfilled tonnage statement for June, showing the first gain this year, slight as the increase of 2305 tons was, comes, of course, as a reassuring factor. While Wall Street has anticipated a further decline, the steel market inclined to the belief a month ago that the falling off reported on May 31 represented the final stage in the liquidation of what was formerly long-range buying and is now hand-to-mouth buying.

Demand for sheets, stripsteel, cold-finished bars, and alloy steel reflects prevailing conditions in the automotive industries. The number of orders placed is relatively good, but tonnages involved in individual orders are quite frequently of retail proportions.

Sheet-rollers are making short-time contracts for their third-quarter sheet-bar requirements, apparently being convinced that they have nothing to gain by committing themselves for their entire requirements over the third quarter. Several Mahoning Valley sheet mills extended the Independence Day shut-down and remained idle all week.

Pig Iron—Automotive foundries, when they buy at all, cover their pig iron requirements by single carloads. Blast furnace output is expected to dip further this month. The market remains nominally on an $18, Valley furnace basis, but price-shading is more or less general in all markets.

Aluminum—Automotive demand for aluminum is of a routine character. The market for remelted metal is decidedly easy, but this is rather due to the plentitude of scrap than to pressure on prices by consumers. The virgin metal market is unchanged. While here and there some odd lots of resale metal are offered for sale, these offerings are not extensive enough to make them a market factor. Imports continue to be held down, pending reduction of holdings in bonded warehouses.

Copper—Copper producers are bending every effort to induce domestic consumers to stock copper at the prevailing low prices, so as to offset in a measure the continuing apathy of Europe toward American copper offers. Although 12½c copper looks like a buy, in which all risk for the buyer is eliminated, consumers are slow in taking hold.

Tin—The market continues easy. Prices are about 10 per cent lower than the year's high, and while about the same as a year ago, it is pointed out that the world's visible supply is slightly lower than it was in July, 1926.

Lead—In response to London bear maneuvers, the market has declined to the lowest price in four years, with storage battery manufacturers showing relatively light interest.

Zinc—Consuming demand has improved, and producers are not very eager to sell at prevailing prices.

First Aeronautic Trade Envoy Named

WASHINGTON, July 14—Appointment of the first American trade commissioner for aeronautics was announced this week by the U. S. Department of Commerce. James D. Summers, of Los Angeles, U. S. A. retired aviator, has been named for the post and will be assigned to Central and South America.

The new post is created, the Department announces, to assist American manufacturers of aircraft, equipment and engines to market their products abroad. Mr. Summers will first make a tour of American engine and aircraft manufacturers and will then make his headquarters at Panama, reaching there Aug. 1.

Toronto Fair Aug. 20

WASHINGTON, July 13—American automobile and accessory manufacturers, interested in the Canadian trade are having their attention called by the Department of Commerce to the annual Canadian exhibition to be held in Toronto, Aug. 20 to Sept. 10. The fair attracts approximately 250,000 visitors daily. Automobile makers interested should communicate with John U. Kent, general manager, Lumsden Building, Toronto.

Change in Trindl Name

DETROIT, July 12—The Trindl Co. of Chicago, manufacturers of piston pins, valves, piston pin lock screws, spring and tie rod bolts, has changed its name to the Trindl Corp. The corporation now has capital stock aggregating $1,250,000.

Milwaukee Dealers Start Junk Plant

Organization of Auto Trade Salvage Co. Completed By Naming Directors

MILWAUKEE, July 14—The Auto Trade Salvage Co., Milwaukee, recently incorporated by members of the Milwaukee Automotive Dealers Association to minimize the junk car abuse and incidentally to promote public safety, has perfected its organization by the election of these directors: Clarence P. Hatter, East Side Buick Co.; Bert F. Anger, Willys-Overland, Inc.; John G. Wollaeger, Studebaker and Erskine; Leslie A. Bailey, Ford and Lincoln; R. W. Leach, Reo; George E. Merkle, Chevrolet, and Frank J. Edwards, Dodge.

The corporation has an authorized capitalization consisting of 1000 shares of common stock without par value.

A salvage yard has been established in the Menomonee valley just below the Wisconsin Avenue viaduct. Suitable buildings have been erected and equipped for junking cars, selecting useful parts for resale, and breaking down the remainder for sale as scrap. It is expected to dispose of at least 5000 cars during the first year of operation.

Frank J. Edwards, as spokesman for the new corporation, said: "The removal of cars which should be in the junk yard and off the highways is admitted by every highway authority as a factor making for safety. We propose, if possible, to alleviate this evil by establishing our salvage yard to take these cars off the hands of dealers. Once a car enters this yard, it will never leave again as a motor vehicle. In doing this we are following the lead of Kansas City, Omaha and other cities which have salvage companies in operation in a highly successful way. We expect in the first year to handle 5000 cars, nearly every one of which would be a menace if driven on the highways."

New Advertising Director

DETROIT, July 14—Dodge Brothers, Inc., has announced the appointment of Sedley Brown as advertising director to succeed Henry J. Koch, who resigned.

Howard F. Sneathen becomes director of Dodge commercial car and truck sales.

R. L. Biggers is made director of sales promotional and development work for commercial car and truck division.

George P. Anderson becomes director of sales engineering of Dodge Brothers.

Leipzig Fair in August

NEW YORK, July 12—The Leipzig Trade Fair, at which many American automobiles are exhibited, will be open from August 28 to September 3. More than 20 countries will display their new products and there will be about 7000 exhibits.

Dodge Net Higher in Second Quarter

Common Stock Earns 82 Cents a Share Against 3 Cents for First Quarter

NEW YORK, July 12—Dodge Brothers, Inc., net income, second quarter of 1927, after depreciation but before income charges and Federal taxes, was 4,939,074 against $2,765,103 in the first quarter and $9,810,875 in the second quarter of 1926.

After all charges and provision for preferred dividends, balances available for both classes of common stock in the second quarter was $3,475,623 or 82 cents a share, against $1,545,348 or three cents a share in the preceding quarter.

For the six months, consequently, the earnings after all charges and provisions were $5,020,971, equal to 85 cents a share on the 2,435,023 no par shares, against $12,366,726 or $3.88 a share on 2,434,563 shares of common outstanding in the first half of 1926.

President Edward G. Wilmer announces that 107,115 cars and trucks were sold during the first half of the year, the net sales amounting to $87,516,173. Graham Brothers division, which now produces and sells all commercial vehicles in the line, accounted for 29,677 units in the first six months.

As of June 30, 1927, cash in banks and marketable securities were $25,285,264; accounts receivable were $9,684,462; inventories were $16,493,489 and total quick assets $51,463,216. Total current liabilities, consisting of accounts payable, dealers' deposits, accruals of Federal income taxes, accrued interest on debentures and accrued dividends on preference stock amounted to $21,699,596.

Earned surplus was increased by $2,089,721 to a total earned surplus as of June 30 of $27,661,110 and total surplus of $49,319,329.

During the six months just ended, property accounts were increased by $6,248,603, largely accounted for by provision of plant facilities for introduction of the new Senior line, as well as equipment required for the revision of the four-cylinder product. These plant expenditures have been entirely financed by the company's own cash reserves and in addition the company has retired $2,750,000 of the 5 per cent serial notes issued last year in connection with the purchase of the stock of Graham Brothers.

June Rim Production

NEW YORK, July 13—June production of rims as reported by the Tire and Rim Association of America totaled 1,871,538 against 2,110,885 for June, 1926. Output for the first half of the year was thus brought to 11,414,538 rims against 13,196,577 for the same period of 1926.

War on Toll Bridges Coming in Congress

WASHINGTON, July 12—Open warfare for the elimination of toll bridges throughout the United States is to be made by various interests at the forthcoming session of Congress. That announcement was made here this week by the National Popular Government League. The campaign will receive the support of the U. S. Bureau of Public Roads.

The fee system—with rare exceptions—was characterized by the League as "fee grabbing enterprises" which cost the motorists of the country millions of dollars annually. Examples are cited where franchises for toll bridges are granted by Congress and the franchises sold for big sums by promotors who never put a dime into the enterprise.

The bridge owners will oppose the legislation and have their preparedness by organizing the National Association of Highway Bridge Owners.

Garages Rank Second in Building Expenditures

WASHINGTON, July 14—As a result of the growth of the automobile in the United States, garages and service stations are in second place from a standpoint of building expenditures, according to a survey by the U. S. Bureau of Labor Statistics covering the past six years from 257 of the largest cities.

The figures show the annual per capita building construction during the six years was $74.78. Garages and service stations showed an annual per capita expenditure of $3.84, or 5.1 per cent of the total non-residential buildings.

The Bureau says: "The automobile is a comparatively new factor in American life, but more money has been spent for the erection of garages and service stations than for schools, churches or amusement buildings."

Blum Now Bright Steel

NEW YORK, July 12—The steel and tube division of Julius Blum & Co., is now being conducted under the name Bright Steel Corp., the change in name being effective July 1. There is no change in personnel or general sales policies.

Elected Vice-President

Ernest R. Standfuss has been elected a vice-president of the Harnischfeger Corp., Milwaukee, formerly known as the Pawling & Harnischfeger Co., manufacturer of electric traveling cranes, gasoline excavators and other machinery and tools.

Pennsylvania Names Aeronautics Board

Has Power to Regulate Aviation—Massachusetts Making Study of Subject

PHILADELPHIA, July 14—Regulation of aircraft promises to become an important governmental activity in many states in the near future. Pennsylvania is one of the first to deal with the question and this week Governor Fisher appointed a State Aeronautics Commission of seven members who will have power to regulate air travel, license flyers and prescribe penalties.

The law under which the commission will act makes it unlawful to navigate any civil aircraft in the navigable air space above the territory or waters of the state without a Pennsylvania aircraft and airman's license to be issued by the Department of Internal Affairs, except where the airmen are licensed to operate under the authority of Federal laws.

Power is given the department to promulgate and enforce regulations relating to applicants and the issuance of licenses and for suspension and revocation of licenses.

Licenses will not be issued until the craft has been found by the department to be airworthy and the airmen competent. The regulations of the department will fix the qualifications.

The regulations are to be consistent with regulations adopted by the Secretary of Commerce of the United States. Violators of any section of the law upon summary conviction shall be subject to a fine of $10 to $100 or thirty days in jail.

Study in Massachusetts

BOSTON, July 14—Massachusetts intends to be ready when aviation becomes a real commercial feature. This week at the State House were begun hearings by a legislative committee appointed recently as a result of a bill passed by this year's legislature to make a study of the subject.

This committee is charged in the resolve passed by the legislature to: 1. Consider existing state aircraft regulations with a view to making them conform to federal regulations. 2. Investigate the advisability of the Commonwealth cooperating with municipalities in establishing or improving municipal aircraft landing fields. 3. To consider means and methods to promote aviation in Massachusetts. 4. To consider the matter of extending and improving the aircraft landing field in East Boston.

When the committee completes all its hearings it is empowered to draft proposed laws to cover any parts of the resolve and file its report so that the 1928 legislature will have it when it convenes next January.

Men of the Industry and What They Are Doing

Three General Electric Officials are Promoted

Burton L. Delack, assistant manager of the Schenectady works of the General Electric Co., since December 1, 1926, has been appointed acting manager, effective July 1, according to an announcement by Vice-President C. C. Chesney. Mr. Delack fills the vacancy caused by the promotion of C. E. Eveleth, elected a vice-president June 1 of this year.

Edward A. Wagner, formerly of the Fort Wayne works but since July, 1926, managing engineer in charge of all distribution transformers, with headquarters in Pittsfield, has been made acting manager of the Pittsfield works, succeeding Mr. Chesney, who has been a vice-president in charge of manufacturing since the retirement of F. C. Pratt.

Giuseppe Faccioli, works engineer of the Pittsfield works, has been appointed associate manager and works engineer of the Pittsfield works, Mr. Chesney announced. These appointments are also effective July 1.

Assistant Commissioner

Herman Schuette, formerly assistant chief in the automotive division of the U. S. Department of Commerce, and later special agent for the department, has been appointed assistant trade commissioner at Paris, where his work will be devoted exclusively to automotive trade promotion, the Department announces. Mr. Schuette will be assistant to H. H. Kelly, first automotive trade commissioner to Europe.

Hall With Duplex Truck Co.

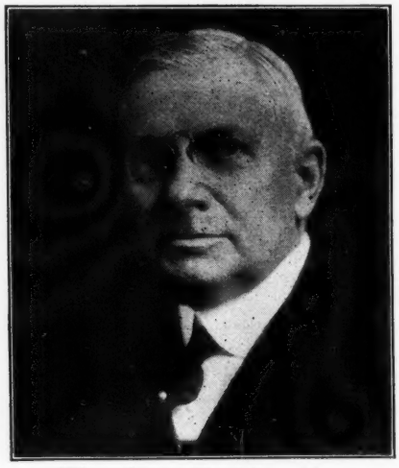
C. W. Hall, formerly manager of the Lansing branch of the Olds Motor Works, and later with the Reo Motor Car Co., has joined the sales department of the Duplex Truck Co.

Heads Chevrolet Zone

L. I. Stewart has been appointed as zone sales head of Chevrolet Motor Co., with headquarters at Buffalo. Mr. Stewart succeeds H. J. Walsh who has been transferred to head the Boston zone. The Buffalo zone was recently allocated to the Flint sales region under J. C. Chick, regional manager.

13,000 Miles to Visit Plant

Benjamin Heywood of Heywood & Sons, Ltd., distributors for Velie cars in South Africa, recently made a journey of 13,000 miles to visit the plant of the Velie Motors Corp. at Moline. During his visit here Mr. Heywood expressed great optimism for the future of the automobile business in the more progressive areas of South Africa.



Theodore F. Merseles

Former president of Montgomery, Ward & Co., Chicago mail order house, who has been elected president of the Johns-Manville Corp., succeeding H. E. Manville, who has served as president since the death of his brother, T. F. Manville, in 1925. H. E. Manville has been elected chairman of the board. Mr. Merseles will continue as a director of Montgomery, Ward & Co.

Oldsmobile Appoints Two Branch Managers

The appointment of George Pomeroy as manager of the Oldsmobile branch at Washington, D. C., is announced by D. S. Eddins, vice-president and general sales manager of Olds Motor Works. Mr. Pomeroy was formerly sales promotion manager for Chevrolet in the Norwood, Ohio, zone. He also had been connected with the Janesville, Wis., zone for several years.

Mr. Eddins has also announced that J. M. Wilson has been appointed manager of the Oldsmobile branch at Atlanta, Ga. Mr. Wilson was formerly assistant zone manager for Chevrolet at Charlotte, N. C.

Chalfant to Make Trip

E. P. Chalfant, executive vice-president of the National Standard Parts Association, will leave early in August for a six weeks' visit with association members in the Middle West and on the coast. He plans to investigate trade and general business conditions and will address a number of meetings of local parts associations and divisions of the N. S. P. A.

Parker on Truck Committee

W. C. Parker, in charge of the Speed Wagon and bus division of the Reo Motor Car Co., has been appointed a member of the truck committee of the National Automobile Chamber of Commerce.

Glancy Entertains G. M. Executive Committee

A. R. Glancy, president and general manager of the Oakland Motor Car Co., was host recently to members of the executive committee of the General Motors Corp. at Pontiac. Included in the party was Alfred P. Sloan, Jr., president of the corporation; Charles T. Fisher, Donaldson Brown, Lawrence P. Fisher, Charles S. Mott, John L. Pratt and John J. Raskob. The two members absent were Pierre S. duPont, who is in Europe, and Fred J. Fisher, who was out of the city.

The party was entertained at luncheon at the Bloomfield Country Club as guests of Mr. Glancy, W. R. Tracy, vice-president in charge of sales, A. J. Brandt, vice-president in charge of production, and B. H. Anibal, vice-president in charge of engineering. The party later left for the General Motors Proving Grounds.

Bridgeport Brass Appointment

The Bridgeport Brass Co. announces the appointment of William S. Kriebel, Jr., of Philadelphia, as salesman of Bridgeport Brass products in the Philadelphia territory. He will make his headquarters at the company's Philadelphia Office in the Bankers Trust Building.

Selden Names Branch Manager

P. W. Gaylor has been made vice-president and general manager of the Boston branch of the Selden Truck Corp. He was formerly a district manager for Larrabee trucks.

Sales Manager Ill

E. T. Ball, sales manager for the Jos. Strauss Co., automotive equipment distributors, Buffalo, has been confined to his home by illness for several weeks. It will probably be several weeks before he can resume his duties.

Currier on Business Trip

G. T. Currier, sales manager of the Lancaster Tire & Rubber Co., who makes his headquarters at the company's general offices in Columbus, O., has left on an extended business trip to St. Louis, Kansas City, Denver, Salt Lake City, Omaha, Minneapolis and Chicago.

Stephen A. Douglas

DETROIT, July 15—Stephen A. Douglas, 63, Michigan representative of the Globe Machine & Stamping Co., died in a Detroit hospital. Mr. Douglas was a pioneer in the automotive industry and had an extensive acquaintance among executives. He was a cousin of the Illinois Senator of the same name of Lincoln's day.

Work is Started on Model Traffic Code

Preliminary Meeting in Detroit Attended by Many Automobile Men

DETROIT, July 15—The National Conference on Municipal Traffic Codes in a meeting held at the Detroit Athletic Club began the task of drawing a model traffic ordinance for municipalities throughout the United States.

According to William E. Metzger, chairman, sub-committees will be appointed to study various aspects of the problem and their reports will be turned in some time during the fall, when an attempt will be made to embody them in a "perfect" ordinance.

The movement was started June 17 at a meeting in Philadelphia, when Herbert Hoover, Secretary of Commerce, named Mr. Metzger chairman of the conference. The work of the conference will parallel that of the Hoover Safety Council in 1924-26, which originated a law for state automobile control which has been adopted by eight states.

A special study is to be made of the model traffic codes of Michigan and California, according to C. W. Stark, of the transportation and communication department of the United States Department of Commerce at Washington.

Those in Attendance

The meeting was attended by the following: Thomas P. Henry, of Detroit, president of the American Automobile Association; A. C. Goodward, city planning engineer, Minneapolis; B. W. Ruark, of the Automotive Equipment Association, Chicago; Howard D. Brown, attorney, Detroit Automobile Club; C. W. Stocks, editor, Bus Transportation, New York; W. B. Powell, consulting traffic engineer, representing American Engineering Council, Buffalo; Sidney J. Williams, director, Public Safety Division, National Safety Council, Chicago; W. J. Towne, chief engineer, Chicago & Northwestern Railroad, Chicago; F. L. Swetland, National Association of Building Owners and Managers, Cleveland; E. J. McIlraith, staff engineer, Chicago Surface Lines; H. B. Flowers, president, New Orleans Public Service; James W. Welsh, executive secretary, American Electric Railway Association, New York; James L. Madden, third vice-president, Metropolitan Life Insurance Co., New York; A. P. Federline, manager research department, American Automobile Association, Washington; Col. A. B. Barber, director, National Conference Street and Highway Safety, and manager Transportation and Communication Department, United States Chamber of Commerce, and John C. Long, secretary, street traffic committee, National Automobile Chamber of Commerce.

2% of Drivers Can't Tell Red from Green

WASHINGTON, July 14—Approximately 2 per cent of all motorists are color blind, it has been found here as the result of an examination of several hundred motorists applying to have driving permits renewed.

As a result of the discovery, based on the number of permits now out, viz.: 132,500, officials declare that some 2640 motorists will probably be found to be color blind and unable to distinguish a green from a yellow or red light. And as a result of the large number in this class, traffic officials have announced that they are making efforts to change the type and shape of the glass in the lights with an idea of providing a remedy, if possible.

Missouri Provides for More Highways

KANSAS CITY, July 13—Two provisions of Missouri's new road laws became effective July 1. One provision places the regulation and licensing of motor buses and freight truck lines in the hands of the public service commission and the other is intended to build up a system of improved roads in each county, connecting with state maintained roads.

This provision requires that the county court in each appoint a county highway commission, the compulsory duty of this body being to lay out and supervise the improvement and maintenance of 100 miles of roads in the county, these roads to be designated as the county highway system.

Counties desiring to plan more than 100 miles of roads in its system can do so by designating 100 miles as primary roads and the balance as secondary roads.

Enlarging Plant Facilities

LANCASTER, PA., July 14—The production facilities of the Bearings Co. of America will be increased 50 per cent by enlargements to the present plants now under construction. The additions are being made in order to increase the company's output of thrust and angular contact bearings, retainers, etc. Three new buildings are included in the construction plan. One structure 150 ft. long by 40 ft. wide and another 100 ft. long by 94 ft. wide are being added to the Sterling plant group.

A third building 130 ft. long by 100 ft. wide is being added to the main plant.

Plan World Flight in Stinson Plane

Trip Around Globe in 15 Days is Aim of Group of Detroit Men

DETROIT, July 12—Plans are under way by a group of Detroiters to send the Stinson monoplane, which was entered in the Ford national air tour, on a trip around the world. The proposition is being backed by Edward Schlee, head of a large motor fuel distributing organization in Detroit.

The plan has gone far enough, it is said, that outposts are being sent to Newfoundland and fuel supply stations in Europe are being discussed with the Shell Oil Co.

It is hoped that the plane will be able to complete the world circuit in 15 days. Mr. Schlee's pilot and companion on the trip will be William Brock, while Edward S. Evans, manufacturer of automobile shipment packing material, who holds the present record of circling the globe in 28 days, has been invited as a passenger. Mr. Evans, a Detroiter, is a director of the Stinson Co.

The Stinson-Detroiter monoplane will have flown 8000 miles when the Ford tour ends. The plane's single 200 hp. Wright Whirlwind engine will be renewed if the longer trip is undertaken. The engine burns 10¾ gallons of gasoline an hour and it is estimated that 450 gallons of fuel could be carried.

Stinson Wins Tour

DETROIT, July 13—Eddie Stinson, piloting his Stinson-Detroiter, was in first position when the Ford national air tour ended here last night. Randolf G. Page, in a Hamilton metal plane, was second, and H. C. Mummert, in a Mercury, was third. Henry and Edsel Ford were on hand to geet the returning flyers. The Edsel Ford trophy for first place, together with $2,500, goes to Stinson. The tour covered a course of 4000 miles, touching 25 cities in 15 states. Grand Rapids was the last stop before returning to Detroit, the starting point.

Markets New Shock Absorber

PORTLAND, ORE., July 14—The Laher Auto Spring Co., with branches at all important centers in the Pacific Northwest, recently placed on the market the Laher Equalizer, a shock absorber which is sealed against mud, water and dust.

Drive for Lower License Fees

SALEM, ORE., July 14—The first step in a move to initiate a measure providing for reduced license fees on motor vehicles was made today when H. H. Stallard and George Bylander, Portland, filed a petition to establish a flat license fee of $3 a year for all motor vehicles including automobiles, trucks and motorcycles.

Goodyear Buys Tire Plant in England

Recapitalization Plan is Adopted at Akron Meeting —Directors Elected

AKRON, OHIO, July 14—A tire manufacturing plant is to be established in England by the Goodyear Tire & Rubber Co. This step is largely due to the recent duty imposed on tires imported into Great Britain.

The company has acquired a modern plant and 70 acres of land at Wolverhampton, near Birmingham. The present buildings have a capacity of 2000 tires and tubes daily and additions are planned as warranted by business growth.

This plant, together with the new one recently established in Sydney, Australia, gives the Goodyear company six factories in various parts of the world. Operations at Sydney will start Oct. 1 with a capacity of 1000 tires and tubes daily.

Stockholders and directors of the Goodyear company have wound up all details necessary to the final adoption of the recapitalization plan announced several weeks ago. Coincident with a special meeting of the company's stockholders in Akron, the company issued its call for the redemption of all outstanding debenture bonds.

The final touches were put on the plan when stockholders authorized the creation of a new preferred stock issue of 1,000,000 shares. This will make it possible for the company to fund accumulated dividends on the present preferred stock. The shareholders ratified the issuance of $60,000,000 first mortgage 5s, which were sold after the Goodyear settlement by Dillon, Read & Co.

Bonds Redeemed Aug. 12

The call has gone out for redemption of $15,911,600, principal amount of ten-year 8 per cent sinking fund gold debentures. This constitutes all of the debentures now outstanding. The bonds will be redeemed on August 12 next. The redemption price is 110.

The plan for funding dividend arrears of $25 a share on the preferred stock provides for an exchange on the basis of one and a quarter shares of new preferred for one share of the old. The new preferred stock, which will rank senior to the existing preferred, will be without par value and entitled to cumulative dividends of $7 a share annually.

Stockholders of the company have elected the following directors: Akron —P. W. Litchfield, Henry B. Manton, Russell L. Robinson and Francis Seiberling; Cleveland — Dr. Robert H. Bishop, Jr., Fayette Brown, George B. Durrell, E. B. Greene, J. Arthur House, John Sherwin, Samuel L. Smith and Gam A. Tomlinson; New York—Clarence Dillon, Walter B. Mahoney and Grayson M. P. Murphy; Chicago—Robert C. Shaffner.

P. W. Litchfield was reelected president. The following executive committee of seven was named: E. B. Greene, G. A. Tomlinson, S. L. Smith, John Sherwin, P. W. Litchfield, Francis Seiberling and W. B. Mahoney.

Business Looks Good, Says Swayne, Sailing

NEW YORK, July 12—Sailing on the Olympic for a business trip in Europe, Alfred H. Swayne, vice-president of General Motors Corp., said that so far as could be judged from present indications the outlook for the automotive industry and for general business was very favorable. He said general business is in a sound and fairly well stabilized condition and unless the agricultural and building situation should prove to be distinctly disappointing there seems to be good reason for expecting the usual seasonal expansion in the autumn.

Upon Mr. Swayne's arrival overseas he will be joined by a group of General Motors executives, who will make a study of business conditions and a survey of General Motors export operations in the European countries. Subsequently the party will sail from England to study conditions in South America.

Plans for G.M. Stock Split-up Taking Shape

NEW YORK, July 13—Rumors were circulated in Wall Street yesterday that plans for the split-up of General Motors stock were advanced at a recent meeting of the Finance Committee. Definite action is looked for at the meeting next month of the directors, but whether the stocks will be switched 2 for 1 or 3 for 1 is understood to be dependent somewhat upon a market level of security.

The corporation statement covering earnings for the second quarter of the year is soon to be issued and is expected to show around $9 a share for the common stock, bringing the six months' earnings close to $15 a share.

Army and Navy to Scrap All Obsolete Planes

WASHINGTON, July 14—The junking of all training types of airplanes in the Army Air Corps between now and Sept. 1, has been announced by the War Department to prevent further air casualties in the Army. On Sept. 1, all "JN" training types of planes will be junked regardless of their condition. During the past fiscal year 150 of these planes were salvaged.

The Navy Department also announces that it will scrap all obsolete planes in the next 60 days.

Reduction is Made in Erskine Prices

Cuts Range From $30 to $50 —New Model Announced —President Sails

NEW YORK, July 14—Announcement of new Erskine prices ranging from $895 to $965, effective July 13, was made by A. R. Erskine, president of The Studebaker Corp., just before his departure for Europe.

President Erskine stated that Studebaker sold 33,000 cars in the second quarter against 29,000 in the same quarter last year, and that net profits of the quarter would exceed last year's figures. These figures make the total sales for the first six months this year 62,000 cars against 59,000 last year. Studebaker's exports for the first six months this year were 16,000 against 6000 last year.

The new and old Erskine prices follow:

Model	Old Price	New Price
Tourer	$945	$915
Sport roadster*	...	965
Business coupe	945	895
Custom coupe	995	965
Custom sedan	995	965

*New model.

Overland to Retire $1,000,000 in Bonds

TOLEDO, OHIO, July 14—Willys-Overland, Inc., on June 30, showed more than $15,000,000 on hand, an amount which is nearly equivalent to the outstanding preferred stock, which aggregates $17,300,000. On Sept. 1 the company will retire $1,000,000 in bonds. Provision has also been made for the retirement of $745,512 preferred stock at the end of July.

Willys-Overland sales for the first half of the year are within 55,000 units of the total attained in the entire year of 1926. Sales for the first half including Whippet and Willys-Knight models, and including domestic, Canadian and export sales, total 124,301 cars, a 30 per cent gain over the same period last year.

Rubber Commissions Reduced 40 Per Cent

NEW YORK, July 13—Members of the Rubber Exchange yesterday approved an amendment of the constitution amending the by-laws to reduce commissions approximately 40 per cent. The new rate will go into effect immediately, and, it is believed, will save hundreds of thousands of dollars annually to manufacturers who hedge their purchases.

U. S. Wealth Due to Road Building

John N. Willys Describes American Development in Address at Stockholm

NEW YORK, July 14—John N. Willys, chairman, Foreign Trade Committee, National Automobile Chamber of Commerce, declared that America did not build roads because of its wealth but in a major degree is wealthy because it built roads, in addressing the Motor Transport Session of the Fourth General Meeting, International Chamber of Commerce, at Stockholm recently.

Mr. Willys pointed out that low motor taxation rates in the United States stimulating vehicle registration, have produced revenue approaching current highway fiscal requirements and that fuel taxes are becoming generally adopted as the most convenient and equitable form of levy.

Roy D. Chapin, president of the National Automobile Chamber of Commerce, presided at the meeting and Windsor T. White, vice-president, and Alfred Reeves, general manager, also attended.

Gabriel Snubber Shows Increase in Profits

NEW YORK, July 13—Net profit of the Gabriel Snubber Mfg. Co. for the quarter ended June 30, 1927, after depreciation and Federal taxes, etc., was $505,118, the equivalent of $2.52 a share on the 200,000 shares of no par value of combined Class A and B common stocks. This compares with net profit of $333,952 or $1.66 a share in the preceding quarter and $356,904 or $1.78 a share in the same quarter in 1926. During the first half of 1927, the company reported net profit of $839,070, equal to $4.19 a share.

National Carbon Takes Over Anti-Freeze Sales

NEW YORK, July 14—Ethylene Glycol, the anti-freeze manufactured by the Carbide & Carbon Chemicals Corp., will be marketed from now on by the National Carbon Co. under the trade name Eveready Prestone. Both concerns are units of the Union Carbide & Carbon Corp.

N.S.P.A. Mails Pamphlet

DETROIT, July 12—The National Standard Parts Association is mailing to its manufacturing members a pamphlet containing information concerning the third annual exhibition of automotive replacement parts, maintenance materials, shop equipment and tools at the Auditorium, Cleveland, O., Nov. 14-18, inclusive. Included is a floor plan showing approximately 200 booth spaces available.

Flying Corps Survey Shows Gain in Safety

WASHINGTON, July 12—How safe is flying? What improvements have been made during the past year?

The answer to these two questions has been made the basis of a study and report by the flying corps of the Navy and Marine and cover the fiscal year of 1927 which ended on July 1.

The figures show that aircrafts of the two corps flew 100,000 hours covering 8,000,000 miles. For every 750,000 miles flown but one fatality occurred. Based on hours flown, there was one fatality for every 8400 hours. The former figures (miles flown) represents an improvement of 25 per cent in safety, while the latter figure (hours flown) represents an increase in efficiency of 30 per cent.

The highest contributing factor in the increased safety, the report says, is the improvement in engine construction.

June Best Month This Year for Stutz Sales

INDIANAPOLIS, IND., July 14—June was the best month the Stutz Motor Car Co. of America has had this year, according to Vice-President Edgar S. Gorrell. "Net orders received by the factory from dealers for shipment of motor cars in June were 40 per cent greater than those received in the month of May, and exceeded those received in any month so far this year. Incidentally, they were materially greater than those received during June of last year," he said.

New G.M. Truck Branch Established at Knoxville

KNOXVILLE, TENN, July 13—Establishment of a new branch for the handling of General Motors truck sales and service in east Tennessee and part of the Kentucky and Virginia territory, with headquarters in Knoxville, was announced by W. L. Cave, formerly with the branch at Miami, Fla., who will have charge of the new branch in Knoxville.

Mack Branch in New Home

ALBANY, N. Y., July 12—The Albany, N. Y., branch of the Mack-International Motor Truck Corp., has moved from 135 Ontario St., to 1062 Broadway, a new building constructed and owned by the Mack company. This is the fifteenth branch to occupy its own building since this real estate policy was put in force by the company some time ago. The new building on Broadway occupies 56,414 sq. ft. of floor space. F. F. Staniford is manager.

$180,000,000 for New Highways in West

Program for Coming Year Calls for Expenditure of That Amount

LOS ANGELES, CAL., July 14—New highway construction and improvements in the eleven Western States during the next year will be on a broader scale than ever before in history, according to tabulations of estimated incomes for road purposes announced by the Automobile Club of Southern California. Approximately $180,000,000 will be expended during the coming 12 months on intensive road construction as a preliminary to a long term of "pay as you go" state highway programs.

California will lead the band in the amount of new funds for state roads, while Colorado, Idaho, Montana, Nevada and New Mexico have provided for greatly increased revenues through heavier gasoline taxes.

The estimated budgets for the coming year of the eleven Western States for all highway expenditures is estimated as follows:

Nevada, $3,631,000; Wyoming, $4,516,000; New Mexico, $4,971,000; Idaho, $6,537,000; Utah, $7,949,000; Montana, $7,652,000; Arizona, $9,252,000; Colorado, $13,470,000; Washington, $20,843,000; Oregon, $22,711,000; California, $78,054,000.

These estimates are the total of the gasoline tax, automobile license fees, Federal aid, forest aid and county and district funds that will be available for roads.

Compulsory Insurance Proposed in California

SACRAMENTO, CAL., July 14—Investigation of the advisability of adopting a compulsory automobile insurance law in California will be completed and report made to the next session of the legislature, according to Edgar C. Levey, speaker of the assembly, and chairman of the committee charged with the investigation. Traffic conditions outside cities also will be gone into by the same committee.

Larger Elcar Eight Engine

ELKHART, IND., July 14—Elcar Motor Co. announces that it is now fitting its light eight-cylinder car with an engine of 2⅞ in. bore instead of 2¾ in. as formerly. The change is said to give higher speed.

New Houdaille Distributor

BUFFALO, July 14—Houde Engineering Corp. announces the appointment of the Albany Motor Specialty Corp. of Albany, N. Y., as distributors for Houdaille Hydraulic Double-Acting Shock Absorbers and Scully Spring Protectors for the Hudson River Valley territory.

A.E.A. Starts Car Inspection Period

NEW YORK, July 13—Carrying through a movement initiated by the Automotive Equipment Association through Henry Kirkland, eastern Zone Manager, Governor Al Smith has proclaimed July 18 to Aug. 6 a car inspection period for New York State motorists. Every vehicle owner is expected to drive his car or truck into an official inspection station for having brakes, horn, lights and steering mechanism inspected.

Trucks will also be inspected to see that rear-vision mirrors are in order. The Empire State Automobile Merchants Association, Inc., cooperated with Kirkland in the movement, and A. E. A. Greater Market Development will maintain a staff in the Albany office of the state association until the campaign is over.

In addition to its tendency to reduce accidents and thereby obviate drastic legislation, the campaign is expected to result in a great amount of automotive business, and the A. E. A. proposes to extend the plan to other states once its success in New York is assured.

Cravath Westinghouse Acting Chairman

NEW YORK, July 12—Directors of the Westinghouse Electric & Mfg. Co. have named Paul D. Cravath acting chairman of the board to fill the vacancy caused by the recent death of Gen. Guy E. Tripp until a permanent chairman is elected. Mr. Cravath has served the company for nearly 30 years as general counsel and has been on the board for many years.

Globe Name is Changed

SYRACUSE, N. Y., July 13—The name of the Globe Malleable Iron & Steel Co. has been changed to the Globe Forge & Foundries, Inc.

Laurel, Md., Speedway Going Under Hammer

WASHINGTON, July 12—The Baltimore-Washington Automobile Speedway at Laurel, Md., midway between Washington and Baltimore, has proved a financial failure and was ordered this week to be sold to the highest bidder. The track, built of lumber, and declared to be one of the fastest in the world, will be sold on July 22.

Investors will lose approximately $450,000 in the venture, it is said.

American Express Co. Plans Airplane Service

LOS ANGELES, July 13—Nearly 400 men representing every branch of agriculture, business and industry on the Pacific Coast gave formal recognition to the airplane as a coming factor in transportation at a meeting of the Pacific Coast Transportation Advisory Board in Los Angeles.

The board voted to form a special committee on aeronautical transportation, with P. G. Splisbury, president of the Arizona Industrial Congress, as chairman. This committee will take steps to promote the use of the airplane in commercial transportation and avoid the mistakes that were made in not recognizing the utility of the motor truck 15 years ago.

There has been an increasing demand for airplane express and the American Express Co. now has negotiations under way with several commercial airplane companies for contracts to carry such express, a representative of the express company told the board. He predicted that air express will be a reality on the Pacific Coast within the new few months.

Buses Substituted for Trains in West

SPOKANE, WASH., July 14—The motor bus has made rapid strides in supplanting railway transportation in the northwest during the past month. The Great Northern Railway has abandoned its lines to Vera, Liberty Lake and Millwood. This meant the taking off of 28 electric trains daily. The Auto Interurban bus lines took over the service on these runs and also expanded their bus service to include a line to Newman Lake. The bus service is running on a heavier schedule than the railway service and residents of the section now served by buses have better service as a result.

The Union Pacific has adopted motor buses in an even more pretentious way. Some time ago a bus line was started by this railway from Walla Walla to Pendleton. This proved so successful that on July 1, a bus service from Pendleton to Portland was started. This new motor coach service is over the famous Columbia River Highway and was inaugurated largely because of the large number of tourists preferring to ride over scenic portions of their journey in motor coaches.

Aeromarine Plant Not Sold

NEW YORK, July 13—That the plant of the Aeromarine Plane & Motor Co., at Keyport, N. J., has been sold to G. M. Bellanca, as reported a few days ago, is denied by Inglis M. Uppercu, president. The company is building buses in addition to making starters for airplanes and carrying on experimental work.

Falcon-Knights Going Abroad

DETROIT, July 12—Falcon Motors Corp. shipped 310 cars for export during June, most of which went to European countries. Falcon-Knight is now represented in France, Belgium, Germany, England, Italy, Norway, Sweden and Holland.

Calendar of Coming Events

SHOWS

Chicago .....Nov. 7-12
Exposition, Coliseum, Automotive Equipment Association.

Chicago .....Jan. 28-Feb. 4
National, Coliseum, National Automobile Chamber of Commerce, including special Shop Equipment Exhibit.

Chicago .....Jan. 28-Feb. 4
Automobile Salon, Hotel Drake.

Cleveland .....Sept. 19-23
Exposition, Public Auditorium, National Machine Tool Builders' Ass'n.

Cleveland .....Oct. 3-7
Exhibition, Public Auditorium, American Electric Railway Ass'n.

Cleveland .....Nov. 14-19
Convention Hall, National Standard Parts Association.

Cleveland .....Jan. 9-13
Public Auditorium, American Road Builders Association.

London .....Oct. 14-22
Olympia Passenger Car Show.

London .....Nov. 17-26
Olympia Truck Show.

Los Angeles .....Feb. 11-18
Automobile Salon, Hotel Biltmore.

New Haven, Conn. .....Sept. 6-9
Machine Tool Exhibition.

New York .....Nov. 27-Dec. 3
Automobile Salon, Hotel Commodore.

New York .....Jan. 7-14
National, Grand Central Palace, National Automobile Chamber of Commerce, including special Shop Equipment Exhibit.

Paris .....Oct. 6-16
Grand Palais.

San Francisco .....Feb. 25-March 3
Automobile Salon, Hotel St. Francis.

CONVENTIONS

American Chemical Society, Detroit, Sept. 6-8

American Electric Railway Association, Public Auditorium, Cleveland..Oct. 3-7

American Road Builders' Ass'n., Hotel Hollenden, Cleveland .....Jan. 9-13

American Society for Steel Treating, Convention Hall, Detroit....Sept. 19-24

Automotive Equipment Association, Coliseum, Chicago .....Nov. 7-12

National Association of Automobile Show and Association Managers, Drake Hotel, Chicago .....July 28-29

National Safety Council, Stevens Hotel, Chicago .....Sept. 26-30

National Standard Parts Association, Hotel Hollenden, Cleveland..Nov. 14-19

S. A. E.
National

Chicago, November—National Transportation and Service Meeting.
Chicago, Dec. 1—Tractor Meeting.
Cleveland and Detroit, Sept. 19-22—Production Meeting.
Detroit, Jan. 24-27—Annual Meeting.
New York, Jan. 12—Annual Dinner.

RACES

Altoona, Pa. .....Sept. 5
Atlantic City .....Sept. 5
British Grand Prix, Brooklands.....Oct. 1
Charlotte, N. C. .....Sept. 19
Detroit .....Sept. 10
Los Angeles .....Nov. 24
Salem, N. H. .....Oct. 12
Syracuse, N. Y. .....Sept. 3